AN EMPIRICAL INVESTIGATION INTO THE DRIVERS OF RE-SUBSCRIPTION IN MASSIVELY MULTIPLAYER ONLINE GAMES: A COMMITMENT TRUST THEORY APPROACH

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PhD

June 2010

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A thesis submitted in partial fulfilment
of the requirements of the
University of Northumbria at Newcastle
for the degree of
Doctor of Philosophy

Research undertaken in the
Newcastle Business School

June 2010

Abstract

This is a relationship marketing PhD which is examining, using Commitment Trust Theory, the customer decision to maintain subscribing to a massively multiplayer online game. This PhD is not an examination of initial purchase decision, but of the ongoing, post-purchase, customer retention. In keeping with the contextual nature of Commitment Trust Theory, this study examines the antecedents of the re-subscription decision and their effect on the key mediating variables of Commitment and Trust and modifies the framework to model the subscription based nature of the business situation and the context. The key contribution of this research to the literature is the application of the Commitment Trust framework to a customer's ongoing relationship with a massively multiplayer online game entertainment product; a situation and context which has not been examined in the literature.

An online questionnaire survey was used to collect a sample of data from 2226 massively multiplayer online game customers. This sample data was then analysed using Structural Equation Modelling to test the relationship hypotheses between the constructs proposed by Commitment Trust Theory. Furthermore, hypotheses examining the effect of relevant demographic and categorical variables upon the constructs of Commitment Trust Theory were also tested and analysed using appropriate statistical techniques.

Evidence was found to support the Commitment Trust Theory framework in a massively multiplayer online game subscription situation, with the study's model explaining 85.7% of the variance of the sample data, with evidence presented to support the key mediating variable approach to modelling the circumstances. The study, based on examining the effect size of the construct relationships using standardised regression weights then gives evidence that a more parsimonious model which reduces the number of constructs from 16 to six (a 70% reduction in complexity) would still produce a model explaining 85.3% of the variance of the sample data (a 0.4% loss in explanatory power).

The study concludes that the key antecedent constructs in the sample for a customer's renewal of an online gaming subscription are current satisfaction, past satisfaction, the amount of game capital they have within the game and the metagame benefits they derive from the game. The study supports a key mediating variable structure, but provides evidence that while Commitment and Trust are both relevant and statistically significant, a more efficient explanation examining the effect size of the relationships as well, would focus on the antecedents of Commitment rather than Trust, as Trust and its antecedents were not found to have a significant effect size on the overall decision to re-subscribe.

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Acknowledgements

I would like to express my gratitude towards both my supervisors, Dr Dilek Demirbas and Professor Jacqueline Harvey who have supported me throughout my study. The process of a PhD is a long and involved one, and these two individuals have tirelessly over the last five years worked with a single aim in mind; to ensure that I work to achieve my best. They have given me extensive support and have, through their constant feedback and encouragement, made sure that I kept on track and never faltered.

I would also like to show my appreciation to my colleagues at Northumbria University. A number of my colleagues have taken the time and effort to read and give comment on my chapters over the years, and I would like to thank especially Dr David Hart, Dr Ike-Elichi Ogba and Dr Stephanie Macht for taking the time to do so. The ideas and discussions we had proved very useful in improving the thesis. I would also like to show my appreciation to Professor Richard Slack, Dr Tony Blackwood and Keith Anderson. Without their advice, encouragement, wit and wisdom the PhD journey would have been both longer and less tolerable. I would also like to thank Dr Teresa Waring and Andy Robson for their excellent advice to me in the mid-point stage of the doctorate, guidance which turned (what was) a lifetime's research agenda into a practically finish-able project.

I would like to take the time to show my gratitude for the feedback received from Professor Michael Saren and Dr Avi Shankar at the Academy of Marketing Doctoral Conference 2009 in Leeds, their advice and comments were very constructive and positive.

I would like to thank the senior management of Newcastle Business School for approving the programme of semester-long sabbaticals for members of staff. Without the time the sabbatical has given me, this thesis would have been significantly poorer, and probably never completed to the deadline.

Newcastle Business School has made a huge investment in my future professional development by giving me this probably once-in-a-lifetime opportunity, and I thank Professor Paul Croney and Professor Sharon Mavin especially for deciding to support me in this manner.

I am indebted to the kind and continuous support that my family and friends have provided. A PhD is rather consuming and somewhat anti-social pre-occupation, and the understanding of Denise Grundy, Michael Pearson, Mary Pearson, Barry Blamire and Ruth Blamire has helped to make sure that I've felt supported and encouraged right through the process. In particular I would also like to thank Neil Gow who was an invaluable sounding board, and suffered though many tedious conversations without complaint.

Most of all, I would like to thank my beloved wife Jane, who's faithful steadfast patience has been the rock around which my life has revolved for the last five years. Many things have been put on hold in our lives while this thesis was written, and I look forward to returning the commitment and trust Jane has shown by prioritising her needs for a change. Thank you.

David Grundy

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June 2010

Declaration

I declare that the work contained in this thesis has not been submitted for any other award and that it is all my own work.

Name:

Signature:

Date:

Chapter One

Introduction and Overview

1.1 Introduction

This is a Relationship Marketing PhD which is examining, using Commitment-Trust Theory (Morgan and Hunt, 1994a), the customer decision to maintain subscribing to a massively multiplayer online (MMO) game. This PhD is not an examination of initial purchase decision, but of ongoing, post-purchase, customer retention. The aim of this investigation from the outset is to test the relative importance and adequacy of existing marketing constructs relating to customer commitment, customer trust and customer satisfaction in the re-subscription decision that a customer makes when continuing the relationship with a subscription-based MMO gaming product.

1.2 Rationale for Research

Whilst considerable discussion has occurred in the Game Studies literature looking at MMO games from economic (Castronova, 2003), psychological (Yee, 2004), sociological (Williams et al., 2008) and educational (Steinkuehler and Duncan, 2008) perspectives, the empirical literature on MMO games currently contains very little looking from a purely business perspective. There is a distinct issue with this research though as Hopson (2006) makes clear; "*the games industry isn't listening."* (p.1). Thus far, the research into games has been deemed too academic by practitioners and lacking in business application.

> *From the perspective of someone on the inside, the average piece of academic games research just doesn't get the job done. It's not a question of quality of the research or the intelligence of the researcher or the game maker; it's a question on bridging the gap between the academic and business cultures.* (Hopson, 2006, p.1)

While impassioned pleas from academics (Ondrejka, 2006) and some game developers (Adams, 2002) to find common ground for interaction have been made, generally the main criticisms of current games research comes down to two points, *"…game researchers aren't providing the kind of research that game developers need, and that they aren't providing it in an accessible and digestible form"* (Mullen, 2009, p.219). Game developers may love to build games, as Hopson (2006, p.2) explains, but they are business people first who wish the focus of research to be to their business model and profitability.

> *If the research doesn't include specific practical recommendations or a measurable impact on the final product, don't bother… everything else, the brilliant theoretical breakthrough, the clever development… falls on the industry ears like 'wah wah' noises made by Charlie Brown's teacher.* (p.2)

Indeed, as Mullen (2009, p.220) points out, even a number of game studies scholars view the research efforts of *"scholars from humanities backgrounds in particular"* as having a *"dubious value"*. Generally this is because of the lack of utility to industry end users, and the non-instrumental nature of the research undertaken, with industry insiders like Varney (2006) being highly critical of the *"ludology"* (p.2) discipline and *"game studies"* (p.2) in general. This divide between the current academic literature and the games industry is the literature gap that this PhD addresses. This is not a ludology discipline or game studies investigation; this is an applied relationship marketing, business orientated, PhD. The aim and objectives of this PhD are instrumental and focus directly on the key drivers of monetary gain in the subscription business model which many MMO games use; customer retention and customer loyalty.

1.3 Research Aim, Questions and Objectives

The principle aim of this study is an examination of the re-subscription decision by customers in MMO games. As re-subscription is core to the revenue business model used by leading MMO games, the variables which affect and influence that decision are key. This study has three specific investigatory research questions which underpin and complement the principle aim.

- Firstly, which of the relationship marketing customer service constructs identified from the literature are important in the re-subscription decision made by customers?
- Secondly, are there relevant factors in the context which affect these customer service constructs?
- And finally, how do the key constructs interact to influence the re-subscription decision?

In order to answer these questions the following research objectives have been identified:

1. To adapt the nomological framework of Morgan and Hunt's (1994a) Commitment Trust Theory to the MMO gaming context and to specify the nature and form of the re-subscription decision relationship.
2. To clearly define the domains of the customer service constructs which are to be examined and to specify a rigorous set of hypotheses which test the first and second question.
3. To address the first research question by confirming and appraising the Commitment Trust framework containing the customer service constructs using Structural Equation Modelling. Then establish, using an Alternative Models approach, which constructs are relevant, and which are important, in the explanation and modelling of the decision-making process.

4. To address the second research question by exploring and assessing the effect of relevant factors in the context upon the established constructs using appropriate statistical techniques.

5. To evaluate the interactions of the key decision constructs based on the evidence from testing the nomological framework to address the third research question

6. To evaluate the outcomes of the investigation, the theoretical, methodological and practice contributions, and to discuss future potential research directions.

To achieve the principle aim, this study will establish why the nomological framework of Morgan and Hunt's (1994a) Commitment Trust Theory is suitable for the examination of this relationship. As a theory which explains the interaction of customer service constructs, this study then justifies the selection and appropriateness of constructs for examining the re-subscription decision. Using Churchill's (1979) approach to good research design, the study bases this justification of suitability on the iterative combination of literature examination, exploratory fieldwork and survey piloting to produce context relevant constructs which have clearly defined domains.

The first research question is addressed though the design and implementation of a research instrument which collects data to validate the relevance of the established constructs of the Commitment Trust framework in an online gaming setting. This validation tests the seventeen confirmatory hypotheses proposed by the nomological model using Structural Equation Modelling. Once a validated and reliable model containing all the relevant relationship marketing customer service constructs is confirmed, this model is then compared to two different frameworks using the Alternative Models analysis approach. This comparison establishes firstly that a modelling approach using mediating variables is suitable, and then contrasts the model containing all the variables against an alternative based on just those constructs which displayed a statistical effect size in their associations. This

comparison is then appraised, examining its efficiency in answering the first research question.

The research instrument implemented also addressed the second research question by collecting data on relevant demographic and situational factors which relate to the customer. Ten exploratory hypotheses are put forward to underpin the second research question relating to these factors, and the affect of these upon the customer service constructs is tested using T-tests examining both statistical significance and effect size. These results, in combination with the evidence from the Structural Equation Modelling, then form the basis for an assessment of each individual construct.

Finally, the interactions of the key decision making variables are evaluated based on Gruen's (1995) interaction framework. The evidence from both the confirmatory and exploratory dimensions of the study, which address the first two research questions, is considered, and the combinations of the key variables assessed, with conclusions drawn as to their influence upon the customer re-subscription decision.

1.4 Context of Study

The context of this study is subscription-based MMO game products which are sold to customers who own a personal computer (PC) and an internet connection. This part of the entertainment industry has become pervasive in the last decade, rising from just a few thousand households in the late 1990s, to 2009 market research showing that 14% of US households have an online gaming subscription (NPD, 2009) with the market estimated at 50 million customers in 2008 (Second Skin, 2008). This emergence has been put down to the convergence of two key factors in the last decade; the household computer becoming the norm rather than the exception, and the increasing penetration of broadband access in OECD countries (Business Insights, 2009).

Video games have grown to be big business. Analysis from PricewaterhouseCoopers (2009) valued the video games market in 2008 at $35bn of which $4.3bn in 2008 was the PC gaming segment. Video games

and video game content now makes up a sizeable part of entertainment spend of net disposable income (Nielson, 2010a). In 2009, video games ranked seventh on entertainment expenditures in all US households and third in those households which indicate themselves as actively buying video games (Table 1 below).

Monthly Entertainment Share of Wallet (%)

Category	All US Homes	Video Game Buying Homes
Participating in Activities such as dining out, shopping, going to a museum	24.8%	20.4%
Regular TV packages (such as basic cable)	17.9%	13%
Participating in non-media activities at home, such as hobbies	6.9%	7.7%
Attending live events (such as concerts or sporting events)	5.9%	6.3%
Seeing movies at a theatre	5.4%	5.9%
Cellular phone-related entertainment (all but calling plan)	5.3%	5.3%
Video game content (new and used games, downloadable content, rentals and peripherals)	4.9%	9.3%

Table 1: 2009 Average US Monthly Entertainment Expenditures (Nielson, 2010a)

The personal computing segment of the video games market has been financially dominated by the success of a single games product for a number of years now. Blizzard Entertainment's (now Activision Blizzard) phenomenally successful product "World of Warcraft" was released in 2004 and six years later, in an industry noted for its pace of change, it was still topping the retail sales charts in the US (Table 2 below).

Rank	Game Title	Publisher
1	World of Warcraft	Blizzard Entertainment
2	The Sims	Electronic Arts Inc.
3	The Sims 2	Electronic Arts Inc.
4	RuneScape	Jagex Ltd.
5	Halo: Combat Evolved	Microsoft Game Studios
6	Call of Duty 4	Activision
7	Left for Dead	Electronic Arts Inc.
8	Call of Duty	Activision
9	Diablo 2	Blizzard Entertainment
10	Fallout 3	Bethesda Softworks

Table 2: Top 10 selling PC games in the US in 2009 (Nielson, 2010b)

From a business model perspective, World of Warcraft is significantly different from the other games listed above. World of Warcraft is a massively multiplayer online role playing game, part of a genre of games which have customer retention and loyalty at the heart of their business model. Games such as “Call of Duty” or “Left for Dead” listed above use a flat fee selling structure (IGDA, 2002) where customers pay for the retail game at an outlet, and then can play the game all they want, having bought all the content. Whilst MMO games use a range of business models, the most financially successful of these has been, and the focus of this study is, what Alves and Roque (2005) term the *“Traditional Time-Based Subscription Model*” (p.1359) and IGDA (2002) term the “*Subscription Pay for Play Revenue Model”* (p.14).

This business model has been financially very successful. In 2008 the 11.5 million World of Warcraft subscribers, each paying on average around $15 a month (Alves and Roque, 2005) led to total revenue of $1.34bn; 30% of the total PC video games market revenue for that year. This financial success also led to Blizzard Entertainment being de-merged in 2009 by Vivendi and sold in a $21bn merger deal to console games giant Activision to form Activision Blizzard (Activision Blizzard, 2010). While a number of MMO gaming products exist, World of Warcraft dominates the marketplace with over 60% of the market share of subscription games in 2008 (Figure 1 below).

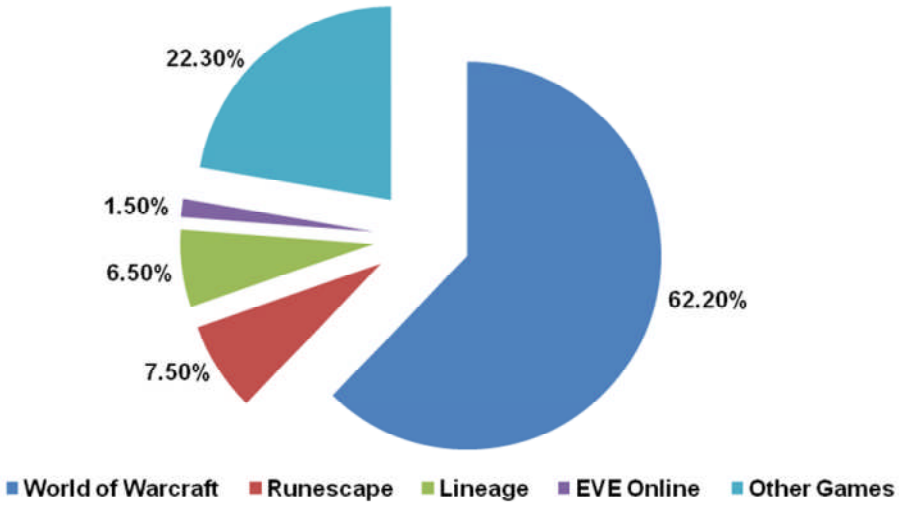

Figure 1: Market Share of MMO Game Subscription Market (MMOchart, 2010)

In the subscription business model the game developer provides both the initial content and regular updates. These updates take the form of either a free game download (commonly termed a "patch") or a fee-costing product expansion that the customer can buy (IGDA, 2002). These product expansions provide additional income from retail box sales and generate *"significant revenues"* (IGDA, 2002, p.15). While they are usually not a required purchase for the customer, they are typically necessary for long term customers to buy if they wish to access the best content in the current incarnation of the game, as they generally (but not exclusively) add additional *"high end"* (IGDA, 2002, p.15) improvements for the customers who have completed the majority of the current game. The rate of development and sales of the expansions can vary, with some game developers like NCSoft having a rapid cycle of six months while others like Activision Blizzard have a year or two year cycle.

The expansion serves a dual role, as Bainbridge (2009) explains, while the *"… chief goal of expansions in subscriber-based virtual worlds is to retain customers"* (p.248) the expansions also create content to entice customers who have left to return. Expansions serve as landmark events from both the customers' playing perspective and from the company's cash flow

perspective. Blizzard Entertainment's "Burning Crusade" expansion sold 2.4 million units (at around $40 each) in its first 24 hours reaching a record $96m first day sales (Blizzard Entertainment, 2007). The subsequent expansion broke that record selling 2.8m units in a single day with $112m first day sales (Activision Blizzard, 2008). For comparison purposes, Avatar, the current motion picture income record holder, had opening day box office sales of $26m rising to $76m over its opening weekend (Reuters, 2009).

In a subscription based MMO, the game developers produce all the content, manage the intellectual property and enforce the *"exclusive right to make a profit from it"* (Alves and Roque, 2005, p.1360). Unfortunately for the games developers, this *"exclusive right"* (p.1360), is impinged by unauthorised third party sellers of in-game items who make profit by selling virtual items (usually in-game currency) for real money (Heeks, 2008). The value of this grey market itself has had its size continuously revised and re-estimated (Table 3 below); as the general MMO game market grows, so it seems, does the grey market activities, with 100,000 workers estimated to be involved in the production of grey market virtual goods and services in 2008 (Second Skin, 2008), mostly based in mainland China.

Source	Year	RMT (Volume)	Estimate Type
Castronova	2001	$5m	Academic
Castronova	2004	$100m	Academic
Salyer	2004	$880m	Industry
KGDI	2006	$830m	Governmental
Chinese Gov.	2006	$901m	Governmental

Table 3: Estimates of MMO Game Grey Market Size (adapted from Lehtiniemi and Lehdonvirta, 2007)

The core of the customer experience for MMO gaming products may instrumentally vary from a space trading game to a fantasy based game, but the basic gameplay elements are usually the same. The customer is in a persistent networked online environment, a virtual two-dimensional (2-D) or three-dimensional (3-D) videogame, represented on a computer screen,

where multiple geographically distributed users can interact with each other in real-time (Papargyris and Poulymenakou, 2005, p.41).

The customer creates a digital character, commonly called an avatar, to interact with both the game environment and other customers, and develops this avatar over time. MMO games are social games, in which interaction with other customers, and the development of social networks, is seen as an important part of the customer experience and game play mechanics. Customers band together to form in-game groupings to overcome game challenges, and to gain in-game currency, items and achievements along with the ability to develop and personalise their avatar (Steinkuehler and Williams, 2006, p.886).

These interactive entertainment products games are purposefully designed as *"escapist fantasy"* (Steinkuehler and Williams, 2006, p.886) by product developers, with the never-ending and ever changing nature of the gaming product synergising with the monthly subscription business model. Customers cannot complete an MMO game, an expansion or new content patch is always on the horizon and, quite literally, there is always another (virtual) dragon to slay (Rettberg et al., 2008, p.20). Consequently, customers don't leave the MMO entertainment product, and stop paying the monthly subscription, because they have completed all the content. This is as "winning" or "completing the game" is merely a point of view in a product which is constantly having new content added.

1.5 Research Methodology

This study acknowledges that all observation is fallible and can contain error (either from the instruments themselves or the participants) and that interpretation of the results should be made in light of a critical appreciation of the impact of these fallibilities and limitations upon the findings. A naïve realism, that this study can produce perfect constructs which measure the truth flawlessly is implausible, especially to those who have conducted research themselves. Therefore, while this study is a positivist enquiry it

follows the concepts of scientific realism (Hunt, 1990, p.8) in its interpretation of results:

> *The fundamental tenets of scientific realism: classical realism, fallibilistic realism, critical realism, and inductive realism* (Hunt, 2005, p.5)

From this perspective, the goal of knowledge generation is to describe, observe and measure the phenomena that we experience. This epistemological viewpoint sees the world as structured and deterministic, and perceives an understanding of the truth of a situation though objective measurement (empiricism) as the key to creating new knowledge (Hunt, 1983; 1991). Burrell and Morgan (1979, p.54) define this epistemology as one which *"..seeks to explain and predict what happens in the social world by searching for regularities and causal relationships between its constituent elements".* This positivist paradigm synergises well with the research objective of this study's investigation of understanding the variables in the re-subscription decision. The re-subscription decision variables are seen as real and objective constructs which can be measured, and through measurement and observation will be better understood and managed by businesses.

In this investigation Morgan and Hunt's (1994a) Commitment Trust Theory forms the basis of the nomological framework in which the defined re-subscription decision constructs correspond. This study tests the hypotheses that underpin this framework by collecting observations from participants in the MMO context. As a nomothetic framework which establishes a set of measureable deterministic principles, the Commitment Trust Theory is a positivist theory, and thus there is a consistency between this research's ontology, epistemology and the underlying nomological framework and postulates tested. The Alternative Models approach adopted by Commitment Trust Theory (from Structural Equation Modelling) and its concentration on the creation of knowledge though parsimony and improving understanding also synergise with this study's underlying scientific realism ontological philosophy.

1.6 Research Design

This study applies Churchill's (1979) marketing research framework, a positivist empiricist research approach, to a MMO setting. This framework comprises generating variables for enquiry from a literature review, conducting preliminary investigative studies to confirm the domain of those variables in the specific context, collecting and analysing data in a pilot survey to 'purify' variables, and finally conducting a larger scale survey to assess reliability and validity of the findings (Grant, 2003). This framework complements and synergises with the ontological viewpoint that the variables are real and exist, and the epistemological viewpoint that the generation of knowledge is through the observation and measurement of variables. The framework is also, though its acknowledgement of the need for constant refinement and purification of both the measures and the domain of constructs, one that is rooted in scientific realism.

In keeping with Churchill's (1979) structured approach the main study was preceded by two initial exploratory studies and a pilot study which refined the domains of the constructs and the measures of the survey instrument. The data collection method was administered as an online survey which was promoted on popular leading MMO game community websites. Due to the commercially sensitive nature of subscriber details and numbers, online gaming research has been unable to proceed with true random sampling (Yee, 2006). As such, researchers into MMO games have been forced to survey from the customer perspective as no sampling frame is available.

The survey collected 2226 responses from participants in June 2009. Following the analysis procedures of Structural Equation Modelling (Arbuckle, 2009) and Churchill (1979), the study first used the reliability measure of Cronbach's Alpha to purify the constructs followed by confirmatory factor analysis and Structural Equation Modelling. Full Structural Equation Modelling consists of a two-stage approach using a measurement model and a structural model (Anderson and Gerbing, 1988) and in keeping with this two step process this study first determined the

validity of the measurement model before fitting the data and testing the relationships amongst the latent constructs.

1.7 Research Boundaries and Scope

The researcher sets the boundaries of the research in recognising the scope of the investigation (Grant, 2003, p.10). The definition of the boundaries concerns the units of analysis and the breadth of scope of the thesis coverage. The unit of analysis in this research is the customer and their re-subscription decision with the MMO gaming product. This is a business-to-customer dyadic relationship which includes structured communication channels between both parties. The unit of analysis is further clarified as only examining the subscription based MMO gaming product, the largest segment of the market, by both market share and income levels.

The scope of this research specifically examines the re-subscription decision only; not the initial purchase decision, nor the initial subscription decision. Customers who are examined in this thesis have already purchased the product and subscribed at least once to that product. As most MMO purchased games include a free month of the subscription in the cost of the retail box, this means that customers examined in this research will have at least two months' experience of the product. As such initial fears over inputting credit card details into an online server and so forth have been overcome by the customer. Linked to this, by the nature of the research methods employed, the analysis of the customer to business dyad is a "moment in time" examination. In this case, data was collected in June 2009.

A further boundary is the overall coverage of participants, their geographic location and language. The massively multiplayer online games market is a truly global market, however the author is limited by language barriers in which participants can be reliably questioned. Consequently this study is limited in scope to an exploration of English-speaking attitudes and impacts. The survey was only conducted in English and promoted only on English-speaking websites and forums. Though a wide range of geographical areas

were represented in the online survey it was predominantly a survey of Western customers (Table 4 below).

Region Total	Frequency	Percentage
Europe	875	58.4%
North America	523	34.9%
Other	100	6.7%
	1498	**100.0%**

Table 4: Summarised Responses by Geographic Location

Age is also a boundary for the scope of this study. By the nature of the ethical clearance, this study could only examine those participants whose stated age was 18 years old or over. Recent research on MMO gaming demographics indicate that around 25% of the subscribing customers are below the age of 18 (Yee, 2006). This research does not cover this segment of the market.

1.8 Significance of Study

It is acknowledged by Morgan and Hunt (1994a) that the Commitment Trust Theory framework needs to be developed, extended and the findings replicated across different contexts (p.34). In the area of theoretical development, the exploration of alternative approaches to construct measurement is described as fundamental to extending the model into new contexts, or types of relationships (Morgan and Hunt, 1994a, p.32). This theoretical contribution contextualises and adapts existing customer service constructs to the MMO gaming relationship and develops new constructs related to online gaming. In doing so, it evaluates the effectiveness of these construct measures in modelling the re-subscription decision, and appraises the usefulness of Commitment Trust Theory in modelling this type of business relationship. Significant studies of Commitment Trust Theory have developed the literature in this way, and introduced or distinguished context relevant constructs, with examples of website stickiness in website usage (Li et al., 2006), wellbeing benefits in donations to not-for-profit organisations

(MacMillan et al., 2005) and perceived security in online banking (Vatanasombut et al., 2008).

Furthermore, this study presents a methodological contribution to Commitment Trust Theory. Past studies have altered the design of their research to include longitudinal effects (Verhoef, 2003) or by collecting and assessing qualitative data rather than using a quantitative survey (Friman et al. 2002). This study uses Cohen's (1988) effect size measures to differentiate between relevant constructs and important constructs in the research design. This extends the assessment and evaluation of the Commitment Trust Theory framework by introducing a new layer of modelling interpretive analysis. Commitment Trust Theory investigations have generally just used Morgan and Hunt's (1994a) linear additive "Rival Model" (Vatanasombut et al., 2008) as their comparator to justify a mediating variable approach. This study extends the analysis method by advocating the additional comparison of results against an effect size based model to promote efficiency in the understanding of relationship. Morgan and Hunt (1994a) identified that helping managers to understand what constructs were important, rather than a *"laundry list"* (p.32) of relevant constructs was the conceptual aim of the framework. The results of this study suggest that significant efficiency in interpretation can be achieved, and that conceptual aim be better realised, by including effect size based models as a further comparator.

Finally, this study provides an empirical contribution by testing customer service constructs in a context in which instrumental, business focused research is seen to be lacking (Hopson, 2006). As an applied discipline, to remain business relevant, Relationship Marketing needs to replicate, validate and modify existing theories and models to meet the challenges of new business models, contexts and products. Morgan and Hunt (1994a, p.34) specifically identified replication across different contexts as a vital first step towards generalisability of their model. The results of this study are significant in that they address the gap in the research literature concerning

the video games industry. The results of this study evidence the validity of applying customer service constructs and relationship marketing theories to the relationships this industry develops.

1.9 Structure of the Thesis

This thesis is divided into eleven chapters with Chapters Two, Three and Four outlining the research literature and conceptual framework, whilst Chapters Five, Six and Seven concern the research undertaken by this study. Chapters Eight, Nine and Ten relate to the analysis and interpretation of that research with the final Chapter Eleven concluding the thesis, and discussing its contributions to knowledge.

Chapter Two identifies the basis for examining the customer re-subscription decision from a Commitment Trust Theory and Relationship Marketing perspective. Commitment Trust Theory is a predictive model of human decision making based on identifying key customer variables, whilst Relationship Marketing is concerned with the long term development of customer relations. Both of these are identified as key components to achieving the investigatory aim of this thesis of understanding and examining the re-subscription decision.

Chapter Three outlines the role of Churchill's (1979) marketing research framework in the design of this research's constructs and, in accordance with this framework, clearly defines the operational domains of every construct used in the main study. The constructs from this study are mainly based on existing and established relationship marketing constructs with minor wording changes for the context. Where context specific constructs have been introduced, the literature surrounding these has been examined, and the basis for inclusion detailed.

Chapter Four details the 27 specific test hypotheses which examine this investigation's research questions. Seventeen of these hypotheses are confirmatory and concern the testing of this study's adaptation of Morgan

and Hunt's (1994a) nomological framework to a MMO context. Ten are exploratory and concern relevant demographic and contextual factors.

Chapter Five discusses how the research aim and questions of this study were operationalised into an investigation, with the research design approach detailed, discussed and mapped. Structural Equation Modelling in the study, a technique which synergises with Churchill's (1979) approach, is then discussed. Structural Equation Modelling forms both a structural model and a measurement model and this study follows the two step process of first validating the structural model using Confirmatory Factor Analysis and then fitting the data to the measurement model using goodness-of-fit statistical measures. Structural Equation Modelling techniques emphasise that the measures are purified using Cronbach's Alpha and Factor Analysis techniques, and this approach complements the concentration on internal validity and rigour that Churchill (1979) stresses.

Chapter Six discusses how the operational definitions of the constructs identified in Chapter Four were developed into the correspondence rules for specific measurement. This research follows the recommendation of Straub et al. (2004, p.413) that in positivist research, pre-validated instruments relating to the constructs being examined are highly desirable, and details both the rationale for the measures used and how they link to the domains of the constructs. Chapter Six also details the initial exploratory studies undertaken by this investigation and the pilot online survey used for construct measure refinement and purification (Churchill, 1979). The first exploratory study undertaken was a case study comprising three convergent elements; a pen and paper questionnaire survey of 162 final year university students, a netnographic approach using responses from 31 online gamers on a popular video games forum and field notes from contact with a World of Warcraft guild. The second study examined the elements of confidence and trust, and applied a netnographic approach to gather the views of eight long term MMO customers. The resultant questionnaire survey pilot is detailed with the role of the 26 participants in refining the research instrument discussed.

Chapter Seven then moves on to the questionnaire survey research instrument that was deployed, which collected data from 2226 MMO gaming customers. It examines issues such as the survey coverage, sampling and demographic benchmarking. Due to the confidential nature of subscriber numbers this study utilises the indirect method of asking the customers to participate rather than having a database to form a sampling frame. This study's resultant dataset benchmarks well with other large studies of MMO customers who have used similar data collection techniques.

Finally, this chapter discusses the application of the Structural Equation Modelling process to analyse the data collected. The latent constructs discussed in Chapter Four were tested using Confirmatory Factor Analysis, and they displayed a strong internal validity. In keeping with a two step approach, a Modification Index was applied, and the model re-specified based on the results (Arbuckle, 2009, p.112). The analysis found a coherent and internally valid structural model upon which to measure the data. The data was then measured on this structure using Goodness-of-Fit statistics, which display a good fit for the data to the model.

Chapter Eight details the statistical findings of this study from the examination of the 17 confirmatory hypotheses and the application of Alternative Models technique. The Seventeen Path Model, which includes all of the constructs presented in Chapter Three, is tested, and evidence is found to support 11 of Chapter Four's hypotheses. However, for four of those 11 supported hypotheses it was noted that the Cohen's f^2 of the relationship, the effect size of the relationship, was so low as to make it, using Cohen's heuristic indicator, insignificant. Two Alternative Models are then presented. First, this study follows the Morgan and Hunt (1994a) Commitment Trust Theory approach of comparing a model including all the relevant constructs (the Seventeen Path Model) against a linear additive "Rival Model". This displays that placing Commitment and Trust at the centre of the relationships as mediating variables allows for a better interpretation of the data. This comparison gave evidence to support the mediating variable approach.

These findings are then compared to a further alternative model based on just those relationships which display a significant effect size; this model is termed the Five Path Model. This comparison showed that the Five Path Model fitted the sample data just as well as the Seventeen Path Model, and for a 70% reduction in complexity lost less than half a percent in explanatory power. This chapter then concludes by discussing the creation of knowledge from the findings, and considers issues of parsimony and interpretation. The alternative models compared by this study are considered with the role of parsimony seen to be *"all things being equal, less is more"* (Arbuckle, 2009, p.586). The argument is made that while the Seventeen Path Model does explain more, the trade-off of that 0.4% for a 70% reduction in the complexity of the explanation is judged to be acceptable, with the Five Path Model found to be a more efficient explanation of the re-subscription decision.

Chapter Nine then moves on to display the findings of the analysis of the ten exploratory hypotheses. It was found that a number of the constructs displayed statistically significant differences when particular factors were examined. This provided sufficient statistical evidence in a number of the constructs to reject the null hypothesis of no change, and accept the alternative hypothesis that there was a change due to the presence of that factor.

In Chapter Ten the combinations of psychological outcomes upon the customer's decision are considered, and it is discussed that if benevolent trust is un-important in the relationship (but not insignificant), and the relationship is driven more by commitment and expectations of satisfaction, then a business-to-customer relationship in the MMO context can be expected to be more volatile. Finally, the constructs themselves are discussed, with an emphasis on what new knowledge this study adds to the evidence about each of them in a MMO product context.

Chapter Eleven concludes the thesis and summarises its theoretical, methodological and managerial contributions. The limitations of this study

are discussed and future research avenues are outlined to continue and develop the investigation's findings.

1.10 Summary

This chapter has set out the foundations of this thesis. The gap in the literature which this study addresses has been defined as the gap between non-instrumental theoretical research that academics are providing, and the instrumental business-focused pragmatic research that the game developing practitioners are requesting. This chapter defines the research aim that this thesis addresses as examining the re-subscription decision, as understanding the drivers of commitment and retention in a MMO gaming product which lead to a customer deciding to re-subscribe.

The research context, the 50 million customers who make up the MMO gaming segment of the $4.3bn PC gaming market has then been introduced. In this industry segment, the subscription based business model has been phenomenally successful and at the core of this business model is the commitment and loyalty of the customers who, month after month, re-subscribe to their entertainment product.

This chapter also gives an overview of the research methodology that has guided the study in its selection of appropriate methods, with the importance of Churchill's (1979) approach to research design highlighted. Finally, an outline of the thesis was presented, and the boundaries and scope of the investigation defined.

On these foundations, this thesis now proceeds with a detailed examination of the background literature with a specific emphasis on the nomological framework which underpins this investigation: Commitment Trust Theory (Morgan and Hunt, 1994a).

Chapter Two

Commitment Trust Theory and the Nature of the Relationship

2.1 Introduction

Not every purchase is the start of an ongoing business relationship for the consumer, and to assume that would be a mistake. One-off or rare purchases, for example the purchase of cold or flu medicine when ill, are perhaps best viewed through the lens of traditional transactional marketing theories. As such this study starts with explaining the applicability of Commitment Trust Theory, the basis of this study's approach, and examines why this framework is both an established one and a robust one with which to investigate the drivers of the MMO re-subscription relationship. Relationship Marketing's applicability to the MMO gaming customer re-subscription decision is then examined, defining why this online gaming relationship should be investigated from a relational perspective rather than a transactional one.

As the premise of Commitment Trust Theory is that there exists a dyadic interaction in the relationship between the customer and the business, this study then sets out its definition of the nature and form of the MMO gaming relationship. The emphasis of this chapter is on the network channels and the directions of the relationship interactions. This is as Commitment Trust Theory is a network channel approach in which establishing the validity of

the interactions is critical. This study argues that the customer's relationship with the business and game product is that of a membership, and this chapter details the rationale for this.

2.2 Application of Commitment Trust Theory and Relationship Marketing to the MMO Gaming Context

The concept of being entertained, of spending (possibly limited) personal time in a way that brings personal emotional satisfaction is at the heart of the entertainment industry (Vogel, 2007). However, the continuing relationship that an individual has with his local golf club and paying his monthly dues is very different from the continuing relationship that the same individual may have with his local energy supplier; though both may entail monthly payments. Unsurprisingly as a result, in practice, different types of companies treat customers of their products in different ways, some even rejecting customer relationship development as an option due to the nature of purchase decisions or the income model used by the business (Palmer, 1996, p.20).

Commitment Trust Theory as posited by Morgan and Hunt (1994a) is defined by the theoretical assertion that

> *…trust and relationship commitment play key mediating roles in the process of relationship development and relationship performance… that (1) relationship benefits and termination costs relationship influence commitment, (2) shared values influence both commitment and trust, and (3) communication and opportunistic behaviour directly influence trust (and, through trust, indirectly influence commitment)…Morgan and Hunt propose qualitative outcomes and theorize that these outcomes promote relationship success.* (Goo and Huang, 2008, p.217)

The theory centres around the identification of key characteristics or variables, called constructs in the marketing literature, that have causal relationships with each other. Morgan and Hunt's (1994a) *"mediating variable approach"* (p.22) focuses on the antecedents that impact on the decision making processes of relationship commitment and trusting behaviours, and associations between these variables, and the relationship outcomes. This

approach uses positivist deductive research strategies and methods, including the sampling of a given population (usually with survey questionnaires, including online ones), and statistically tests a number of investigative hypotheses for associations between the framework's antecedents and outcomes, usually using Structural Equation Modelling techniques (Holdford and White, 1997; MacMillan et al., 2005; Goo and Huang, 2008).

Commitment Trust Theory is a predictive and causal theory. It establishes that in particular contexts, certain antecedents influence the mediating variables of Commitment and Trust which are psychological outcomes of the antecedents. These mediating variables moderate and influence the behavioural outcomes of the relationship; propensity to leave, stay, become frustrated and so forth (Figure 2 below).

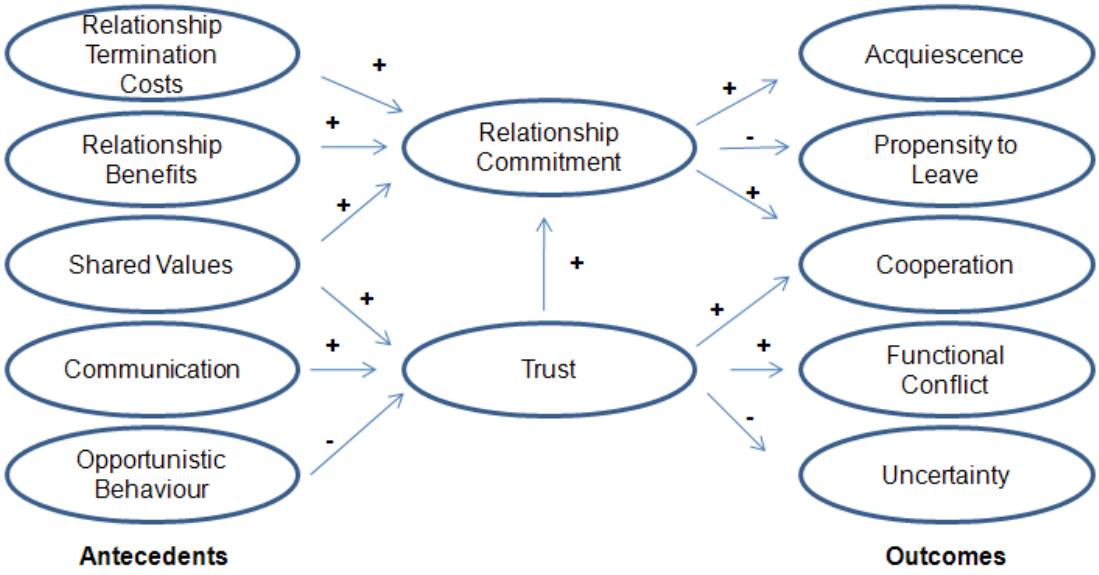

Figure 2: Morgan and Hunt (1994a) Original Framework

The theoretical assertions that Morgan and Hunt (1994a) present in their framework are based on established conceptual models (MacMillan et al., 2005, p.808), with Commitment Trust Theory *"founded upon empirical findings"* (Friman et al., 2002, p.404) and representing a hybrid of theories for the Relationship Marketing field. This is conceptually common approach in a

discipline which regularly integrates and hybridises theories drawn from economics, political science, organisational sciences, sociology and social psychology and law (Eiriz and Wilson, 2006).

Social Exchange Theory (Blau, 1964; Chadwick-Jones, 1976; Heide and John, 1988) is used by Morgan and Hunt (1994a) as the basis of the prediction that relationship benefits and termination costs drive relationship commitment. The positive contribution of trust towards relationship commitment is also based on Social Exchange Theory with Morgan and Hunt (1994a) drawing upon empirical contributions of Achrol (1991) and Moorman et al. (1992) which were developed from interpersonal sociological theories of long term exchange (Perlman and Duck, 1987). Similarly, the link between shared values and commitment is based on the social–psychological theory of attraction based on similarity (Berscheid, 1985), and the theories of the development of commitment norms and opinions in business and interpersonal interactions (Kelman, 1961; Mathieu and Zajac, 1990; Chatman, 1991; Heide and John, 1992).

The contribution of shared values, communication and (a lack of) opportunistic behaviours towards trust have been identified as all having *"…the same theoretical foundations and are based on socio-cognitive learning theories which assume that individuals are rational and learn from the past."* (MacMillian et al., 2006, p.808). Conceptually these theories are drawn from established interpersonal learning literature (Heider, 1958; 1980), with Morgan and Hunt (1994a) drawing upon the empirical studies of Dwyer et al. (1987), Heide and John (1992) and Moorman et al (1993) as reinforcement to their claims.

The rationale for the selection of Commitment Trust Theory is that it is focused on understanding the key drivers of a successful relationship. Morgan and Hunt (1994a, p.31) are explicit that their aim is to provide managers, marketers and researchers with clear guidance as to not only which antecedents are relevant, but also which antecedents are important. This investigative approach synergises well with the principal research aim of

understanding the re-subscription decision drivers in MMO customer relationships.

Commitment Trust Theory has mainly used the technique of Structural Equation Modelling as the analysis method for simultaneous testing of the construct inter-relationships, and for examining a series of predictive hypothesis. Morgan and Hunt's (1994a) initial study predicted 13 relational hypotheses between the variables, though other studies have presented more and less depending on how they have adapted the model to the environment that they are examining. Commitment Trust Theory has used Structural Equation Modelling in its empirical testing of these hypotheses due to a number of interconnected reasons.

Firstly, Commitment Trust Theory's use of latent psychological variables, such as Trust and other abstract psychological variables, rather than more easily measurable manifest variables, means that the measures themselves are error prone (Garson, 2009) due to the nature of what they are trying to measure. Commitment Trust Theory's use of Structural Equation Modelling, and multiple measures per latent variable, means that measurement error can be reduced through Structural Equation Modelling's use of confirmatory factor analysis. This technique concentrates on the convergent and discriminant validity of the measures which constitute the latent variable.

Secondly, Structural Equation Modelling allows for the measurement of models which use mediating variables rather than being limited to an additive linear regression model. This allows for antecedent constructs such as Relationship Benefits to contribute positively towards the mediating variable of Commitment, which itself contributes to a behavioural outcome. A linear approach would have to apply both Commitment and Relationship Benefits additively, ignoring the mediating effect of the Commitment Construct. Morgan and Hunt (1994a) even go as far as in their initial study to use an additive linear *"Rival Model"* (p.30) as a comparator with which to establish that a mediating approach is more valid than a linear additive approach for analysing the drivers of the relationship continuance. This approach is

replicated by this study similarly to add rigour to the interpretation, and validity to the claim, that Structural Equation Modelling provides a more valid interpretation of the research data than an additive linear model.

Lastly, it is the concentration of Structural Equation Modelling on comparing alternative rival models to assess model fit (Garson, 2009) that adds robustness and validity to the results of Structural Equation Modelling. While Morgan and Hunt's (1994a) initial research concentrated on establishing that the relationship was better modelled with Commitment and Trust as the key psychological mediators, subsequent examinations have gone on to compare this baseline model against a number of alternative explanations. This study furthers this approach by including the concept of effect size (Cohen, 1988) in the analysis, comparing the explanatory power and goodness of fit of this study's relational model against a model which includes only those relationships which display a significant effect size.

While the Commitment Trust framework has been applied to a number of different business relationship environments, as of yet it has not been applied to the business of MMO games. Morgan and Hunt's (1994a, p.33) concluding comments are clear though that *"…the model needs further explication, replication, extension, application, and critical evaluation"* with a subsequent call for future application and development tied to marketing business practice. Commitment Trust Theory (Morgan and Hunt, 1994b) is a contextual theory, with the original study conducted using a national survey of more than 200 independent automobile tyre retailers to examine the key drivers in those ongoing business relationships. Subsequently the theory has been used in a wide range of diverse situations, from examining the relationship between pharmacy students and their programme of study (Holdford and White, 1997), to the relationship between a not-for-profit organisation and its organisational funders (MacMillan et al., 2005) and the relational governance in an outsourcing engagement (Goo and Huang, 2008), to cite but a few examples.

Perhaps as influential to this study as the original Morgan and Hunt (1994a) Commitment Trust Theory research itself, Gruen's (1995) adaptation of the conceptual framework to mass market business-to-customer relationships is fundamental to this study's approach. Firstly, Gruen's (1995; 2000) concepts of the business-to-customer relationship as a membership are the foundation of this study's operational definition of the relationship. Second, Gruen's (1995, p.451) characteristics of business-to-customer relationships influence and contribute towards this study's operational definitions of the domain of the communication construct. Linked to this, Gruen's (1995, p.455) inclusion of Expectancy Theory in the operational definition and domain of the Trust construct forms the basis of this study's delineation of past satisfaction competence-based expectancy from Trust benevolence-based expectancy, which is a fundamental premise of this analysis. Thirdly, Gruen's (1995, p.453) adaption of the conceptual framework links Satisfaction to both Commitment and Trust and links Commitment to Propensity to Leave (Future Intentions). Finally, the analysis by Gruen (1995, p.464) of the interaction of the psychological outcomes forms the basis of this study's evaluation of the results.

To conform with the characteristics of an online gaming entertainment product, with a subscription based renewal method, this study adds such constructs as customer satisfaction, past satisfaction and other relevant contextual antecedents. These contribute towards ongoing relationship commitment (See Figure 3 below) in keeping with the findings of Gruen's (1995) adaptations of Commitment Trust Theory to the business-to-customer market. This is reflecting the emergent properties from the literature, which differentiate an entertainment product with an ongoing subscription element from other types of product relationships. These constructs are further discussed in Chapter 3 which details the construct domain and the reasons behind construct selection and delineation.

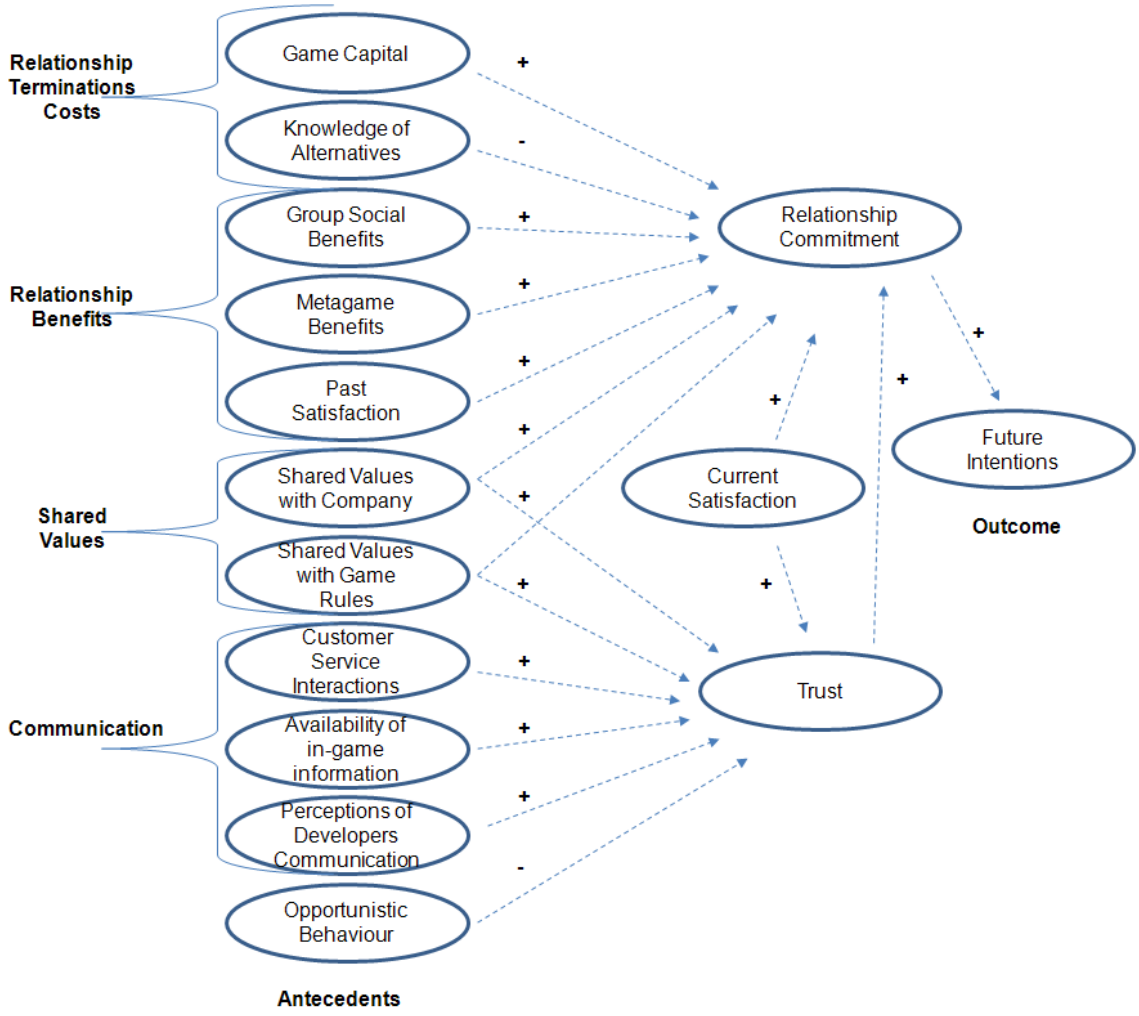

Figure 3: A Model of Commitment and Trust in the MMO game setting

Having established a rationale for the choice of this study's conceptual framework, Commitment Trust Theory, this study now moves on to consider the wider question of why Relationship Marketing as a discipline is applicable to the MMO re-subscription business-to-customer relationship. A relationship which is an income generating one for the product generating company that is based on on-going relational exchanges, rather than discrete one-off payments.

Relationship Marketing itself has been defined in many ways over the years. While Berry's (1983, p.25) definition may be the most recognised it is also generalistic and as such this study takes Gronroos's (1996, p.11) definition as its basis due to its comprehensiveness. In particular Gronroos's (1996)

definition focuses on the role of relationship marketing to *"identify and establish"* (p.11) relationships, which is seen to synergise well with this study's approach to the investigative problem:

> *identify and establish, maintain and enhance and, when necessary, terminate relationships with customers and other stakeholders, at a profit so that the objectives of all parties involved are met; and this is done by mutual exchange and fulfilment of promises* (Gronroos, 1996, p.11)

Marketing research differentiates clearly between discrete exchanges and relational exchanges. Discrete exchanges are seen to have a beginning, an end, a short duration and involve usually anonymous parties, with little or no history, and little or no future interaction intention (Egan, 2008, p.38). Companies that evidence these characteristics are seen to find traditional transactional marketing more useful to meeting their goals and requirements, with it perhaps even *"unrealistic"* (Palmer, 1996, p.20) to examine these types of businesses or products using relational approaches. In contrast, relational exchanges are based around the concept of *"…a series of exchanges over a long (or indefinite) period of time.."* (Hunt et al., 2006, p.77) in which the very first sale is perceived as just the beginning of a long term relationship. Subsequent research into successful relational exchanges (Hunt et al., 2006, p.77) has found six factors which are repeatedly evidenced and cited in the literature; trust (Dwyer et al., 1987; Morgan and Hunt, 1994a; Wilson, 1995; Smith and Barclay, 1997; Sivadas and Dwyer, 2000), Commitment (Anderson and Weitz, 1992; Moorman et al., 1992; Day, 1995; Geyskens et al., 1999), communication (Mohr and Nevin, 1990; Mohr et al., 1996), keeping promises (Gronroos, 1990, 1994), shared values (Morgan and Hunt, 1994a; Yilmaz and Hunt, 2001; Brashear et al., 2003) and cooperation (Anderson and Narus, 1990; Morgan and Hunt,1994a), with knowledge of these relational success factors seen to *"…urge marketers to develop and nurture the characteristics of relationships that are associated with successful relational exchange..."* (Hunt et al., 2006, p.78) in order to maximise the effect of a relational marketing strategy.

The theoretical reasons for the use of Relationship Marketing to examine MMO games stem from the very nature of the product as an on-going entertainment expenditure by the customer. Research has shown (Egan, 2008, p.117-18) that the greater the emotional involvement from the customer in the transaction, the greater the drivers promoting the use of examining the transaction from a relationship marketing perspective. With a survey by the Interactive Software Federation of Europe (2008) finding that 80% of respondents said they played computer games for fun and enjoyment, 55% for relaxing and de-stressing and 41% as a relief from boredom, certainly substantial evidence exists that emotional involvement is at the core of a MMO gaming experience (Yee, 2004; 2006). In addition, the emotional dynamics of an entertainment subscription relationship can be considered a *"higher level"* motivational investment on the part of the customer (Dwyer et al., 1987) with comparable previous Relationship Marketing research investigating football season-ticket sales (Gruen, 2000, p. 356), TV channel subscriptions (Burez and Van den Poel, 2007) and similar entertainment products.

Relationship marketing theorists, coming from an applied discipline perspective, have discussed the *"considerable evidence that organisations are increasingly applying relationship marketing concepts in mass markets"* (Bhattacharya and Bolton, 2000, p.327), with one of the key issues behind this seen to be the importance of customer retention. Discussing the necessary pre-conditions for relationship marketing both Bhattacharya and Bolton (2000, p.328) and Egan (2008, p.108) discuss the impact of customer acquisition costs and retention upon business strategies, with those businesses who incur high acquisition costs relative to retention costs seen to pursue more relational strategies with their customers, with even small increases in retention seen to have large beneficial effects on business profitability (Fornell and Wernerfelt, 1987, 1988; Reichheld and Sasser, 1990). Especially apparent though is the need for the mass market product or service to have attributes of *"customer intimacy"* (Bhattacharya and Bolton, 2000, p.330) to form a relationship. The invoking of an emotional

response, *"…happiness, pride, achievement…"* (Bhattacharya and Bolton, 2000, p.330), which leads to a sense of identification or affinity developed over an extended time period is seen as an important part of the *"…necessary conditions for an exchange relationship to exist"* (Bhattacharya and Bolton, 2000, p.329) in a mass market. Correspondingly, Egan (2008) discusses how "*high emotion involved in the exchange"* (p.117) can be a driver for a relational approach, and especially when attachment, membership or affinity are involved might go beyond the business-to-customer channel and the customer may start to incur emotional or social costs for leaving the product (p.87).

The practice-based reasons for using Relationship Marketing come from the practises that companies who run MMO games actually utilise; with usage of loyalty schemes (sometimes with exclusive in-game items as loyalty bonuses for long time subscribers), using customers to sell to their friends (recruit-a-friend schemes) and using current customers to try and persuade former customers who have quit to return (Activision Blizzard's "Scroll of Resurrection" scheme for example). These are all classic examples of *"leveraging"* (Hart et al., 1999, p.544) the customer relationship, as seen in a wide number of industries and products. Industry and practice papers (Doorselaer and Coopens, 2003), clearly discuss that game publishers of MMO games are not just creating a disc and some computer code which they can publish, market and then walk away from (a viable business model in non-subscription based video games for many consoles) they are instead *"game service providers"* (p.118). The emphasis is on the ongoing service element, as the majority of the revenues generated by a MMO game are being generated not by the initial purchase decision, but by the ongoing re-subscription decision made every month (Figure 4 below). Therefore there is an economic imperative, innate to the MMO business model, to engender retention and loyalty strategies; strategies which are seen as core outcomes of Relationship Marketing (Palmatier et al., 2006). Hence, when examining the decision by the customer to keep subscribing to a massively multiplayer

game there are both theoretical and practice based reasons behind why an examination from a Relationship Marketing perspective is valid.

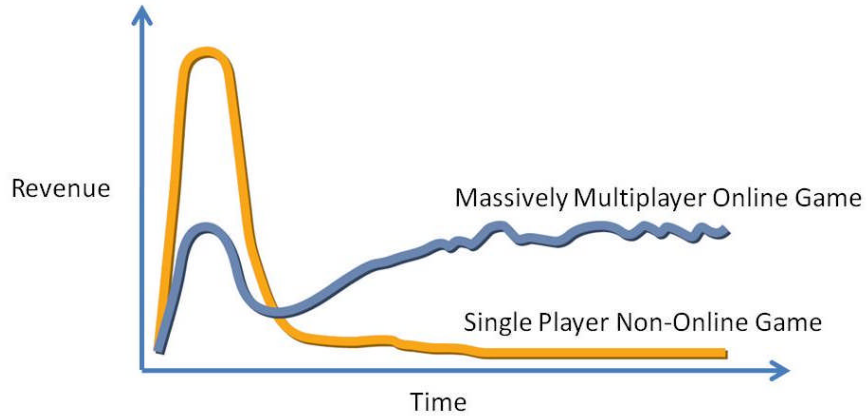

Figure 4: A comparison of revenue streams over time (adapted from Doorselaer and Coopens, 2003)

Definitions of domain Relationship Marketing vary and some academics would even contend that Relationship Marketing should be used to examine all companies and products alike (Rogers and Peppers, 1994). A more balanced, and more mainstream, approach (Christy et al., 1996; Voss and Voss, 1997) would be that different products and different types of customer relationships create different types of dyadic business relationships; including ones in which Relationship Marketing perhaps should not be used. Consequently with the dyadic relationship being a core principle of the Relationship Marketing approach, and of Commitment Trust Theory, this study now sets out its definition of how the dyadic relationship channel is viewed.

2.3 Operational Definition of the Nature of the Relationship: The MMO Gaming Membership

To use a *"crude categorisation"* (Eiriz and Wilson, 2006, p.282), the four main streams of relationship marketing research, the *"Disciplinary Roots of Relationship Marketing*" (Moller and Halinen, 2000, p.35) have thus far been: Interaction and Network Approaches, Marketing Channel Approaches,

Services Marketing Approaches and Database Marketing and Direct Marketing approaches. Of which Commitment Trust Theory is theoretically and evidentially, from Morgan and Hunt's (1994a) comments, and conceptually from the framework itself, an Interaction and Network Approach.

This approach is defined as one which has the view that

> *Relationships exist between actors (firms, organisations and individuals), who exchange all kinds of resources. Relationships are seen as the vehicles for accessing and controlling resources and creating new resources.* (Moller and Halinen, 2000, p.36)

As Commitment Trust Theory is an Interaction and Network approach it is critical to this study to define an operational definition of the relationship interactions and the channels by which they occur (as without which, the entire conceptual approach of the theory is invalid). Essential to this approach is the ability to identify how the actors interact (as they are the unit and level of analysis) and what networks they use to interact (Eiriz and Wilson, 2006).

In Commitment Trust Theory, exchanges are between actors, and the form of the relationship and the (assumed) dyadic dynamic follow from this conception, with the notion of power mediating (or generating) unequal or unreciprocated exchanges. In business transactions though, one of these actors may be an automated system or non-interactive in the exchange. For example consider the online automated ordering system from Amazon.com, a customer cannot quibble or haggle about the postage charges within this exchange. Similarly when buying from a high street retailer or leading supermarket the customer cannot usually bargain or negotiate for a lower price on the products they wish to purchase. In particular, in marketing research, as Mitussis et al. (2006, p.575) discuss, the business application problems of relational theories such as Commitment Trust Theory and relationship marketing in general, can occur when the nature of the focal relationship (i.e. interpersonal, business-to-business, service or mass market) is more towards the mass market end of the spectrum.

This brings into focus the problems of examining an entertainment service product business-to-customer relationship such as an MMO game using a Commitment Trust Theory approach. While the product itself is a service, and service encounters can take place between customers (players) and the business (through in-game contacts, telephone contacts with accounts department etc), for the most part, the relationship is both a distant one and a mass market one. Usually the customer buys the MMO product from a generalised seller, and installs the product using pre-printed instructions and enters sign up details (including credit cards details, address etc) into an automated online system. At no time do they engage in an actor-to-actor interaction, and at all times the power of structural arrangements of the developing relationship impose and dictate the lack of a reciprocated exchange. From then on, after purchase and installation, the customer receives the right to engage in an online entertainment service which usually includes no direct business-to-customer interactions as encounters with customer service representatives will only happen if problems occur, but probably not at all if nothing goes wrong. Renewal of the subscription fees is perhaps even automated, depending on the customer's choices though, as expected in the definition of a massively multiplayer online game, a great deal of customer-to-customer interaction would be expected to occur.

Interestingly, it is seen by Ducheneaut et al. (2006a) that it is these customer-to-customer relationships *"…where most of a player's important relationships are formed and frame a player's social experience in the game"* (p.284) that are key to Commitment to the ongoing gaming relationship and maintenance of playing (and paying). In a survey examining 220,000 World of Warcraft characters over eight months it was found that *"Characters in a guild were significantly less likely to abandon a character than characters not in a guild, but interestingly, as long as a character was in a guild, the size of the guild was not important"* (Ducheneaut et al., 2006a, p.292). Consequently, the customer-to-customer relationships are seen to be performing the important consumption-based customer support group function. Indeed, once the customer has completed all the level progression

game content it was found that *"WoW becomes a much more intensely social game"* (Ducheneaut et al., 2006a, p.308). These activities are strongly encouraged by game designers, with virtual world game design books such as Bartle (2003) stating that *"it is imperative that players be able to form groups"* (p.391) with group communication, promotion of mutual dependencies and communal activities being seen as critical in customer retention (p.212).

While customer-to-customer interactions may be an important dynamic, this still does not address the issue of the business-to-customer non-interactivity. Specifically, Commitment Trust Theory posits "*Relationships develop through interaction"* (O'Malley and Tynan, 2000, p.806) which is a particular issue in business-to-customer relationships in that, in this channel, the interactivity is usually in a highly managed, usually asymmetrical, context (p.807). This type of business relationship exists in the business world in a wide number of ways though; utility providers, telephone companies, satellite TV companies, all these types of service companies, as Bolton (1998) explains have *"embraced relationship marketing with its focus on maximising customer lifetime value"* (p.45) with an aim of developing longer relationships with their customers.

The focus of this study's approach is to define the mass market subscription transaction as the purchase of a membership which entitles the purchaser to various rights and services. The operational definition of a membership used by this study is drawn from Gruen (2000)

> *…a formalised relationship in which a member has made a formal application (which may or may not involve a fee), the member is recognised by the membership organisation as a member (whereas others with similar characteristics or interests are categorised as non-members), and the organisation maintains a specific memory of the member (such as a file - electronic or hardcopy - or on a membership list).* (p.357)

As Gruen (2000) relates, membership organisations are widespread and pervasive, with some studies showing that almost 70% of adult Americans

belong to some kind of membership organisation (p.355). Using Gruen's (1994; 2000) classifications of membership, the renewal payment is an "*access membership"* (2000, p.360) which allows access to a service without which it is inaccessible. While this membership concept may at first seem like a large conceptual leap, examining the commonalities of a membership relationship as discussed by Gruen (2000) in his five general similarities, *"the asset nature of the memberships, the requirement for core service performance, the availability and use of multiple types of bonds, mutual value creation and the presence of psychological mediating constructs"* (p.362) leads to the conclusion that an online gaming subscription has more parallels with a golf club membership relationship or a football season ticket holder relationship than a purely transactional one. Furthermore, MMO gamers share the *"five unique characteristics"* (Gruen, 2000, p.364) which identify them as members:

1. **A specific contractual period of membership exists**. The subscription duration itself represents the membership contract.

2. **An amount of co-production often required by members.** The very nature of the massively multiplayer aspect of the online games and the way games are designed to require mutual interdependence. This includes intense bonding social activities (Yee, 2006) to attempt the end content (Bartle, 2003). Also a meta-currency DKP system is an example of member co-produced social value. It has no value outside of that which the members give it, and its existence denotes political cohesion amongst members (Malone, 2009).

3. **Role of social identification.** The identification of a customer as a player, a guild member, the *"perceived oneness with or belongingness"* (Bhattacharya et al., 1995, p.46), to the game, guild or community and the *"bonds of identification"* (p.46), would indicate that social identification is a main intention of virtual world game designers, with again Bartle's (2003) statement that *"it is imperative that players be able to form groups"* (p.391). This influences the psychological

constructs of trust, commitment and emotional satisfaction, along with social and cultural values the customer accumulates or acquires which bonds them to the game (Malaby, 2006).

4. **Inter-dependence amongst members.** As Bartle (2003, p.232-33) discusses, MMO games are mechanically designed to create mutual dependences on two levels to help create interactions and foster community. Firstly, dependencies amongst customers (player-to-player bonds), in that in-game groupings are required to perform certain tasks within the game. Secondly, community level bonds are formed, the simplest example being an in-game economy in which game mechanics are such in that no one customer can be without the need to interact with the community to develop his avatar.

5. **Linkage of membership to core service.** As the MMO subscription is an access membership (Gruen, 2000, p.360) there is an immediate link between the core service (the entertainment service provided by the company) and the membership itself.

Thus, as the mass market MMO subscription both shares all of the commonalities of a membership, and all the unique features, based on the Gruen (2000) typology, there is evidence that a relationship does exist, and that this relationship can be classified as a membership. Furthermore based on research by Ducheneaut et al. (2006) and others into customer-to-customer interactions in MMO games and their importance, this study concludes that Relationship Marketing mass market criticism that "*Relationships develop through interaction"* (O'Malley and Tynan, 2000, p.806) has been answered in that interactions firmly do take place in MMO games (as the massively multiplayer element would suggest) both on a customer-to-customer level and through a relational public relations route (Kruckeberg and Starck, 1998) with the MMO company listening to and responding to the community. Finally, the emotional nature of the entertainment product (Bhattacharya and Bolton, 2000, p.330) and the evidence of social and cultural values in MMO games (Malaby, 2006)

indicate that the relationship, despite the mass market element, if ended, could create social and emotional costs (Egan, 2008, p.108). This is a clear indicator that the association transcends a mere transactional occurrence and that the customer, through their purchase of the product, has entered into a relationship with both the product and the associated *"consumptive tribes"* (Cova and Cova, 2002, p.595) surrounding the product.

This study forms the basis of its interaction framework from the literature of membership discussed and the multiple MMO gaming product investigations by Yee (2004; 2006; 2007) and Cox (2000). This study defines in Figure 5 (below) the interaction as being through three network communication channels; direct interaction, direct non-interactive communication and by engagement dependent community interaction.

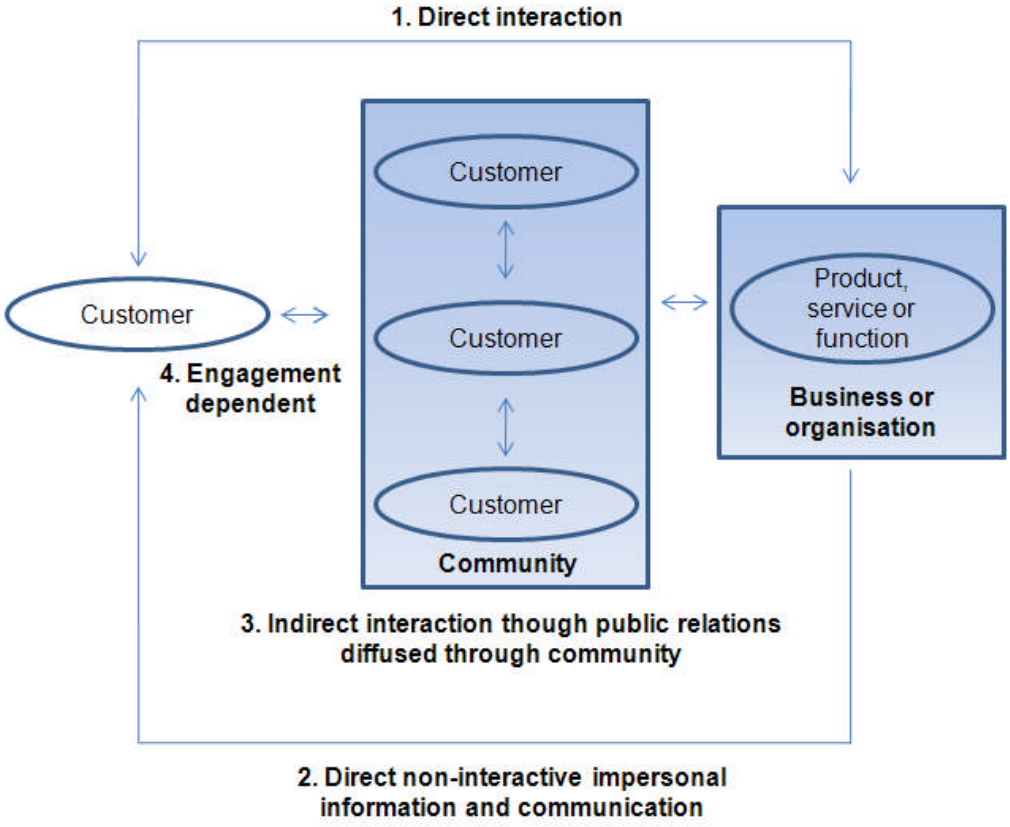

Figure 5: MMO business-to-customer relationships which have communities or consumer tribes

Figure 5 displays how this study views the relationship between a customer and the business/product the month after (and months after) the initial renewal decision. As this diagram shows in **(1)** a direct interaction, a two-way interaction, between the customer and the business (usually through a customer service representative) can take place both in-game (a customer can request assistance from a customer service representative) and out of game (calling the accounts department to discuss billing issues). The business will also engage **(2)** in direct public relations communications with its various customer members, informing them of various events (new patches, new content) or changes. This could be done via direct e-mailing, or for example, in the World of Warcraft product via placing information on the game's "launchpad"; a subprogram which the user usually clicks on to start the process of checking for new in-game content and downloading patches, which also acts as a notice board for Blizzard Activision to place new information on.

All of the information disseminated using **(2)** though is usually communicated informally through the route **(3)** to the consumptive community well ahead of the "official" information. The business interacts and considers (but does not necessarily act on) the community opinions, and information diffuses throughout the community, this is usually an information source which is more detailed (and opinionated). The consumption community in this sense is a rather large concept representing both in-game groupings, guilds and alliances which the player might interact with (customer-to-customer interaction) and extra-game community online forums (of possibly both the game owners own, and forums controlled by customers), consumptive group websites, product-related blogs and perhaps even podcasting radio stations and webcast TV shows (Rheingold, 1993; Evans et al., 2001; Kozinets, 2002)

Thus community in a sense (especially in an internet medium) is all of those parts of the community, this can include both elements with low cultural value or significance, and the more community valued artefacts, being an

accumulation of various aspects. The customer can **(4)** chose to engage with these various community elements, both in-game and extra-game, or not, and it may be quite possible for a World of Warcraft customer to go through the game without reading message boards, without checking a leading related website like MMO-Champion or Wowhead (Steinkuehler and King, 2009), and never using any kind of add-ons (community developed programs); it is possible, but unlikely. Studies by Yee (2006) for example show that the average customer spends over ten hours a week performing such activities. In addition, the community is also both potentially distant (i.e. websites, radio shows etc.) and intimate at the same time as **(4)** also represents the in-game social interactions with fellow customers, which, through the process of identification could be expected to have self-reinforcing effects. For example, a customer in a guild which expects its members to read online strategy guides for in-game encounters may be more engaged with the community and so forth (Yee, 2006).

The consumption community (Cova and Cova, 2002) is the key medium which enables organisations to create relationships with mass markets and their memberships (Kruckeberg and Starck, 1998), and is seen as a critical part of the MMO game product producer's interaction with the customer (Yee, 2006). Thus, the creation, maintenance and management of interactions with this community, and the engagement with it are the key elements which enable organisations to act as partners in the relationship (Kruckeberg, 2000). As Johnston (2008) discusses though, in this community the concept of *"the engagement philosophy"* (p.2) is crucial, engagement *"provides a high level of interest by community members"* (p.2) it provides a motivation to act, be involved, read about the organisation. Engagement is also a *"…set of attitudes that predispose"* (Barkan, 1998, p. 64; Kozinets, 2002) an individual to be a part of the community, to have an emotional bond or emotional involvement and the *"…act of engaging therefore needs to be based on appeals of relevance, context, emotion…"* (Johnston, 2008, p.2). One cannot presuppose the existence of a community though as Johnston (2008, p.3) relates, the dynamic dyadic relationship

between a business or organisation and its community is based on the existence of a typology consisting of there being evidence of community information, evidence of community consultation by the organisation (though critically, consultation doesn't mean influence) and evidence of community participation; *"an active role by community members in the creation of meaning and developing solutions to complex social problems or proposed solutions that affect a specific community"* (Janse and Konijnendijk, 2007, p.23).

In the MMO environment, as Cox (2000, p.221) relates, game developers *"recognise that, having created a community, the game no longer belongs entirely to the developer",* and that good MMO businesses listen to the community, and apply community communication strategies to avoid alienating customers. Those MMO games with the *"worst reputation for customer service"* (Cox, 2000, p.221) are the ones which rule by diktat and refuse to engage with their customer community. For an online product, this customer-to-customer community model of interaction (Evans et al., 2001) allows for a business, even in a mass market situation, to understand and address the concerns of customers (Kozinets, 2002). Consequently, a monthly payment relationship between a utilities company and customer may share functional similarities with a MMO game subscription. However, without an information sharing consumption community, an ability to use that community to consult and listen to problems or issues, and an active community solving issues or creating meaning, these functional similarities do not equate to an expectation of the presence of a useful and meaningful network of online interactions between the business, customer and the virtual community of consumption (Evans et al., 2001, p.152).

2.4 Summary

To summarise, in a comparable example, does a football season ticket buyer have a personal interactive relationship with his football club? Does the football club have a personal relationship with an individual fan? On the surface that would seem to be a transactional relationship. However, a

football season ticket buyer through his purchase can become (through motivational investment and engagement; financial or time-wise) a member of the 'supporters', 'the fans', a member of the consumption tribe which surrounds the team, perhaps even building social capital with other supporters through meeting likeminded people and building connections, and perhaps building cultural capital (knowledge about players, jargon etc). To say this sort of customer doesn't have a relationship, an emotional bond, with the business, would ignore both sense and empirical research (Arnould and Price, 1993; Celsi et al.,1993; Schouten and McAlexander, 1995; Sutton et al., 1997; Cova et al., 2007). Being a member rather than a customer is a clear sign of relationship existence, as the core component of the membership concept is the notion of a relationship (Gruen, 2000). The purchase of an MMO computer game is the start of a process of membership, the initial purchase providing access (Gruen, 2000). However, the purchaser of a computer game has not necessarily entered into any kind of relationship in that initial purchase. As Kotler (1997, p.26) suggests, it is through the renewal decision that the relationship is formed and the membership engagement process is started, with the customer progressing from being an initial first time customer exploring and gaining awareness of the product to a member of that community.

Not all mass market subscription-based business-to-customer channels may be equal. It may be inappropriate to examine non-buyer-motivated and non-emotional transactions which lack a perceivable consumption tribe (Cova and Cova, 2002) using the presumption that a "relationship" exists. This line of reasoning comes to the conclusion that context, emotion and engagement are key when examining the use of the relationship concept in empirical research of this type. The fundamental assumption that a relationship exists is crucial to this research. Consequently, it is important that this research has addressed these concerns and comes to the conclusion that the business-to-customer association is a membership, and that this relationship is seen as both valid and applicable to the Network and Interaction approach which Commitment Trust Theory takes.

Chapter Three

Domains of the Constructs

3.1 Introduction

Essentially the focus of Churchill's (1979) approach to marketing research design is simple; if you start with bad constructs, you'll have awful measures and get terrible results and findings. Or put more simply *"GIGO – Garbage in, Garbage out"* (Churchill, 1979, p.64). Churchill's (1979) approach to research design focuses on the researcher starting from a strong initial point. It emphasises that researchers should not just gain an understanding of a construct from the literature and then go out and survey from that premise, but instead go beyond that in an iterative process of understanding what they are researching.

Churchill (1979) is explicit that in a good research design, that uses good measures, the researcher should start with the literature, then go and conduct some preliminary research, and then, critically, return to the literature to refine the understanding of the domain being researched. This construct and measure focused research approach synergises well with Commitment Trust due to it being a nomothetic, construct based, theory. This approach focuses on identifying the definition of the construct, with Churchill being specific that *"The researcher must be exacting in delineating what is included and what is excluded"* (p.67) in that definition.

3.2 Influence of Research Design on the Adaptation of Commitment Trust Theory to the Online Gaming Context

The nature of the online gaming business model itself, and the decision making renewal point, creates both implicit and explicit contextual impacts which pose unique questions as to the effect of the surrounding environment on the customer's decision making processes. The basis of Morgan and Hunt's (1994a) mediating variable model drew on a wide number of literature sources and theoretical foundations to define the domain of the constructs within the model. However, the development and further extension of Commitment Trust Theory by subsequent researchers shows that these constructs and domains have often had to be changed due to their inapplicability to certain contexts. For example MacMillan et al. (2005), when examining funder relationships in South African crime prevention non-profit organisations, found the constructs of Relationship Termination Costs and Shared Values did not fully fit with the needs of the relationship context, and so the definition and domain of these constructs were changed to meet the relationship environment. Similarly other researchers, such as De Ruyter et al. (2001) when examining relationships in the Netherlands industrial photocopier market, extended the theory by redefining the domain of the Relationship Termination Cost construct to include the concept of replaceability.

Churchill's (1979) approach to the role of literature in research design exemplifies such changes and modifications. Churchill's (1979) approach is that the literature should not form a static, unchanging, starting point to the research. Instead the researcher needs to return to the literature after some preliminary investigations to further purify the measure, further de-lineate constructs which are too complex and tighten the definitions of the domains of the construct. The Commitment Trust research by MacMillan et al. (2005) exemplifies this approach in that it used two pieces of exploratory fieldwork *"…to gain a holistic understanding of the relationship and assess the validity of the main concepts used in the Morgan and Hunt model"* (p.810).

Furthermore, it was from these preliminary investigations, in which respondents were encouraged to "*suggest any changes that were necessary to fit the NPO context"* (p.810), that MacMillan et al. (2005) identified Commitment Trust Theory constructs which were inappropriate, and some of which required modification to the context.

While this study did start from the marketing literature, the iterative steps that Churchill (1979) recommends in research design were conducted and informed the final definitions of the domains of the constructs utilised. Two preliminary studies were conducted by this research; a case study and a netnographic survey, both of which are discussed in more detail in Chapter Six. It is from this iterative cycle of literature review, a preliminary study and then returning to the literature that this research emulates the aims of MacMillan et al. (2005). That being, that by gaining a *"holistic view"* (MacMillan et al., 2005, p.810) of the nature of the relationship to underpin the research aim this allows for the validity of the main concepts to be better assessed for the context. This in turn allows for the purification and further delineation of constructs and in some cases the modification of them to better model the context. It was from this iterative cycle of increased understanding that a number of issues with the original Morgan and Hunt (1994a) constructs became apparent. Most of these issues surrounded Churchill's (1979) recommendation of explicit and exacting domains, while others were due to either the nature of the context or the operational definition of the relational channels.

3.3 Specifying Construct Domain and the Contextual Adaptations

In keeping with Churchill's (1979) approach this study now moves on to specify clearly and explicitly the operational domain of each construct which is to be operationalised in the main study. Table 5 which summarises the modifications made by this study is below. A summary box defining the domain of each construct used by this study is given at the end of this section.

Morgan and Hunt Construct	*Change Made by this Study*	*Summary of Theoretical Underpinning or Reasoning*
Relationship Termination Costs	Delineated Relationship Termination Costs into two constructs with more focused domains: Game Capital and Knowledge of Alternatives.	Malaby (2006) establishes the concepts of Game Capital in MMO avatar games and preliminary research underpinned this. De Ruyter et al. (2001) establish the importance of replaceability in decision making and preliminary investigations confirmed that the replaceability of the satisfaction driving product was an issue.
Relationship Benefits	Delineated Relationship Benefits into three more contextual constructs with more focused domains: Group Social Benefits, Metagame Benefits and Past Satisfaction	Social Group Benefits adapted from Pritchard et al.'s (2007, p.175) concepts of camaraderie (group affinity and identification) in group entertainment situations. Preliminary studies indicated importance of friendship groups and bonding in MMO context. Metagame Benefits is established from concepts of Domain Involvement in Gwinner and Swanson (2003, p.284) and the importance customers placed on non-game product MMO related activities in preliminary studies. Past Satisfaction is based on Bolton and Lemon (1999), Mano and Oliver (1993) and Evrard and Aurier (1994).
	Delineated the domain of the expectancy function of Trust into benevolence based Trust and competence based Trust . Past Satisfaction as the domain of the expectancy of gratification from the product.	Based on both Ganesan and Hess's (1997) dimensions of Trust and Bolton and Lemon (1999). In MMO studies Wu et al. (2009) clearly separate benevolence Trust from experienced confidence of gratification expectancy.
Shared Values	Delineated Shared Values into two separate constructs: Shared Values with game product and Shared Values with games company	The nature of the game product and evidence from the preliminary studies indicated that customers clearly differentiated game product values and company values, necessitating a separation of the concepts.

Table 5: Summary of main changes made to Commitment Trust Theory model by applying Churchill's (1979) research design approach

Morgan and Hunt Construct	*Change Made by this Study*	*Summary of Theoretical Underpinning or Reasoning*
Communication	Delineated Communications into three separate constructs: In-game customer service interactions, availability of in-game information and perceptions of game developers' communications to reflect context	Operational definition of the interaction paths indicated separation of domains, this was confirmed by preliminary studies.
Opportunistic Behaviour	The domain of Opportunistic Behaviours is solely customer orientated behaviours due to nature of context. Business based Opportunistic Behaviours now covered by domain of Trust due to delineation of Benevolence based Trust and Competence based Trust.	Contextual nature of Opportunistic Behaviour necessitates changes based on Heeks's (2008) examination of "gold farming" activities.
Current Satisfaction	Added construct to original model.	Based on Gruen's (1995) adaptation of Commitment Trust Theory to the business-to-customer domain.
Trust	Delineated the domain of the expectancy function of Trust into benevolence based Trust and competence based Trust. Trust is the domain of benevolence based expectancy.	Based on both Ganesan and Hess's (1997) dimensions of Trust. E-commerce literature in both McKnight and Chervany (2002) and Wu et al. (2009) define benevolence Trust as a separate and distinct construct.

Table 5: Summary of main changes made to Commitment Trust Theory model by applying Churchill's (1979) research design approach (cont.)

3.3.1 Relationship Termination Costs

Morgan and Hunt's (1994a, p.24) definition of Relationship Termination Costs is based on the concept of there being switching costs in a relationship which, when high, lead to commitment. This definition draws on the work of Jackson (1985) and Heide and John (1992), with importantly the switching costs themselves defined as perceptual costs, not actual costs. Anticipation of a cost, or the perception of a cost, is what is important, with there being the distinct possibility of a difference between what the relationship partner perceives to be the switching cost, and what they might incur if they did dissolve the relationship.

This study keeps to the initial concept of switching costs being at the heart of the Relationship Termination Costs domain but finds that in the MMO context examined that domain is too wide. The first issue is that Morgan and Hunt's (1994a) concept of Relationship Termination Costs is formed in a business-to-business relationship context where monetary costs are usually high if a relationship breaks down. As Gruen (1995) explains though, in a business-to-customer relationship this isn't usually the case, with not only the buyer having very low financial switching costs, but also the buyer having relatively much lower switching times and the process of switching is much easier *"…in business to customer relationships, frequently there are readily available alternatives that can be substituted for a minimal financial cost"* (p.452).

The process of forming a MMO game relationship would seem to substantiate this. To put this in perspective, a customer who has re-subscribed to a MMO game has already incurred the cost of buying a computer to play the game on, has incurred the ongoing monthly costs of a fast internet connection capable of sustaining online play, has already bought the initial box of the game and has probably paid for all the necessities of life in Maslow's (1954; 1971) hierarchy of needs which enable them to enjoy an entertainment product (Yee, 2006). Indeed, as the fixed costs have already been incurred of the initial purchase decision, the ongoing re-subscription is

more of a marginal costing decision on the customer's part. In comparison to these initial and environmental costs, the ongoing monthly marginal cost, which is on average around $10-$15 or £10 a month (Yee, 2006, p.3), of the MMO game from a re-subscription decision perspective is trivial. This is further reinforced by the fact that the on-going customer, by paying month after month, has acquiesced and accepted that level of subscription payment. MMO customers, in both Nojima (2007, p.674) and the two preliminary studies conducted, saw the cost as negligible, with many commenting on the low marginal cost of £10 a month, especially when spread across the average twenty or more hours a week usage. Some respondents took this as far as to positively compare the marginal per hour cost of a £10 monthly subscription payment, spread across 80 or more hours in a month, to the hourly marginal cost of alternative entertainment forms such as going out to the cinema or to a restaurant, or even the cost of a single pizza in one case.

With it being questionable as to the effect of financial considerations on a MMO entertainment relationship, the other considerations of switching costs (Jackson, 1985; Heide and John, 1992); the investment in the product itself and the appraisal of the alternatives, would be expected to be more relevant to a business-to-customer context (Gruen, 1995). However, to include both of these concepts into just one Relationship Termination Costs construct would undermine Churchill's (1979) insistence that constructs be firmly de-lineated from each other with exacting boundaries. Clearly the domain of these two concepts is logically different. One regards the investment, perhaps even a context specific emotional investment, which the customer has made into a product. The second regards the customer's perception of other products. Though both contribute towards Commitment in the Commitment Trust Theory model, they are not the same concept, and as such this study separates them into two distinct constructs.

Consequently, this study uses Malaby's (2006) Game Capital concept as the construct which explains the investment by the customer into the MMO

product. This is the investment a customer would be forgoing if he gave up his subscription. One of the fundamental product features of MMO games is their avatar based nature, and the investment that customers make over time into the avatar itself; developing, nurturing and strengthening their avatars. Thus it would be expected that any in-game perceived values by customers regarding their avatars' value would also impact on dissolution decisions as a switching cost. A higher investment by a customer in their avatar is expected to result in higher levels of Commitment towards the product, and greater intentions to re-subscribe.

De Ruyter et al.'s (2001, p.275) replaceability construct, which was also used by Li et al. (2006) in an online setting and named the Quality of Alternatives, is termed by this study the Knowledge of Alternatives. This covers the concept of the knowledge, awareness and appraisal of possible replacement products for the customer. This knowledge is obviously limited by the level of perceptual awareness customers have of the available marketplace and their appraisal of the product may be distorted or affected by their feelings of Commitment towards their current product (confirmation bias). As such, customer perceptions of alternative availability are more important than the factual occurrence of alternatives.

As Li et al. (2006) suggest, a customer playing a MMO gaming product may be blissfully unaware of other competing products if he doesn't read reviews, go to websites or actively look for information. Li et al. (2006) found when examining website usage decisions make by customers that those customers who had a poor awareness or appraisal of the quality of alternative websites were more likely to stay loyal to a particular website. Similarly, it would be expected that those customers who display low knowledge and opinions of alternative gaming products would have higher commitment levels. In contrast, a customer well aware of the alternatives, and with positive opinions of them, would be expected to have lower commitment levels.

3.3.1.1 Construct Domain of Game Capital

As Malaby (2006) discusses, value and capital in online games can manifest in a number of forms; *"material, social, and cultural."* (p.141). This study's definition of Game Capital is derived from Malaby's (2006) comments regarding the perceptual nature of the value of in-game value and the nature of what game capital is.

Game Capital is… *the accumulation of material, social, and cultural capital that customers perceive they have within a game. This is a perceptual value, not actual one, and these capitals embody the switching costs customers will incur when they are no longer be able to use, act on or enjoy the capital they have accumulated because of the dissolution of the relationship.*

Box 1: Operational Definition of Game Capital

Game Capital isn't a static value. The value of Game Capital according to Malaby (2006, p.146) is what the customer perceives the particular resource can be used for. For example, high cultural capital may be perceived by customers as allowing them access to more game content. Game Capital represents the sunk investment that a customer has in the game product, with each of the capital forms having a corresponding impact on the perceived termination value of the relationship.

Customers who perceive themselves to have high *"material capital"* (Malaby, 2006, p.149) have valuable in-game goods where value can be both measured in perceived external value (resale value of the account or money on the open market) and personal perceived intrinsic value. Distinctively in online games, relationship termination does not necessarily mean a termination of these market capital values, as most games companies store their customers accounts for months and years after subscription cancellation. Consequently, a customer who has an account with a high market value may not perceive the account's personal value to be affected overly by cancelling, though as time moves on the resale value of the account will decrease as new expansions, items and levels are introduced to the game by the company.

Unlike market value, the perceived *"social capital"* (Malaby, 2006, p.153) of the customer – the friends, connections and relationships a customer has in-game – does potentially lose value over time as the maintenance and cultivation aspects of reciprocal relationship development (Mauss, 1967) are no longer facilitated, unless these are maintained out-of-game. As such, relationship termination by subscription cancellation can also mean the termination of personal relationships with a wide range of individuals the customer knows, the subscription termination cost possibly representing the complete termination of all in-game relationships with positive social capital.

Of these value types *"cultural capital"* (Malaby, 2006, p.155), is perhaps the most complex as it represents both "*the culturally embedded practices of learning"* (p.155) that customers have achieved as well as culturally significant credentials and artefacts that their accounts or avatars may have. As cultural capital is *"…the realization of what a given cultural group finds to be meaningful*" (p.155), it is both specific and distinctive, and represents everything from understanding cultural norms of communication, to understanding the significance of cultural artefacts and/or owning such embodied symbols of cultural meaning. Measurement of cultural capital is thus multifaceted and linked to achievements, accomplishments and perceptions of cultural self-realisation. The termination cost value being represented by the costs associated with no longer being an active participant in the cultural group in which the achieved cultural capital has a value.

3.3.1.2 Construct Domain of Knowledge of Alternatives

This study's operational definition of the domain of the Knowledge of Alternatives construct is rooted in the perceptual, not the actual. This definition is adapted from Li et al.'s (2006, p.116) Quality of Alternatives construct which was used to examine customer retention in online business environments.

Knowledge of Alternatives is…*the perceptual awareness by customers of the replaceability of their current entertainment gaming product with another. This embodies not only an awareness of the existence of other products, but also a perception by the customer of their relative quality.*

Box 2: Operational Definition of Knowledge of Alternatives

A customer's perception of alternative replacement products is a two part process. First, he must be aware of the existence of alternative products, or made aware by advertising and marketing actions. Secondly, he must have some kind of opinion or expectancy as to the relative quality of the entertainment experience provided by the alternative (Johnson and Rusbult, 1989). That opinion could be completely subjective, unsubstantiated and perhaps just plain speculation on the part of the customer, but the important point is, it is the customer's perspective and it is from that perspective that he views the marketplace (Li et al., 2006)

While it is unlikely that any given customer of a product is fully aware of all of the alternative products available, this awareness may be further limited by the issue that a committed customer may be less likely to actively seek alternatives (Li et al., 2006, p.115). This means that committed individuals may have a perceptual bias, which is why the operational definition is rooted in the perceptual rather than the actual (Johnson and Rusbult, 1989). Customers may have, in reality, an abundance of alternative products to choose from, however due to selective perception they may notice only a limited range of alternatives. This cognitive bias influences the awareness of the alternatives, and acts as a further reinforcement to commitment (Rusbult et al., 1998).

> *...people with poor, unsuitable, or undesirable alternatives are more likely to show strong commitment to their present relationships.*(Li et al., 2006, p.115)

Furthermore, Li et al. (2006, p.116) argue that those customers who perceived that their needs could be easily fulfilled elsewhere are less committed. This perception though is possibly different from the actual situation, and customers may again be influenced by the current commitment

towards a product they enjoy, and thus have an altered view of the potential of alternative products. This kind of cognitive distortion can lead to confirmation bias situations, in which customers believes that their game is superior and when examining a possible alternative, negatively rate the quality of that product's capabilities while ignoring its positive attributes (Rusbult et al., 1998).

Consequently, the perceptual quality of this study's definition is key in that it captures the possible cognitive bias or other conflicts which may occur. For the purpose of understanding the influence of the Knowledge of the Alternatives, it is un-important to understand what the alternative products actually are, or what their features are etc. From the perspective of the drivers of a customer's re-subscription decision it is more significant to understand the alternatives from the customer's perceptual viewpoint. It is essential to acknowledge that customers do not make decisions from a perspective of perfect information uncoloured by bias, but instead make decisions from a more complex perspective, in which both awareness and quality assessment are a customer perception rather than a fact.

3.3.2 Relationship Benefits

As an examination of business-to-business relationships in the automobile tyre industry, Morgan and Hunt's (1994b) definition of what constitutes a relationship benefit was very much business orientated. It was defined as the competitive advantage that a relationship partner viewed could be gained from the continued exchange. Obviously, from a business-to-customer perspective this definition is meaningless as customers have very different relationship goals than a business. As such, subsequent Commitment Trust Theory researchers have used a variety of contextually based relational benefits when examining their relationships. These range from needs fulfilment in online banking (Vatanasombut et al., 2008) to the nonmaterial benefits of funding not-for-profit organisations (MacMillan et al., 2005). Holdford and White (1997), when examining the perceived relational benefits of pharmacy students, looked at the perceived positive addition to the

student expectations of getting a job post qualification. Empirical business-to-customer Commitment Trust Theory researchers have rooted their relationship benefits construct in the context rather than generalising, and there has been an emphasis in their research designs of conducting detailed preliminary examinations of the relationship benefits construct. This synergises well with Churchill's (1979) recommendation of an iterative approach to develop good and relevant constructs.

3.3.2.1 Construct Domain of Group Social Benefits

Yee (2006) examined the playing motivations of 6675 customers from a psychology perspective and found that, while the motivations of users were varied, customers scored the development of meaningful relationships consistently higher than all other factors. Yee's (2003) previous research of 2850 MMO players reinforces this; making friends, socializing and interacting, are priorities for most MMO customers.

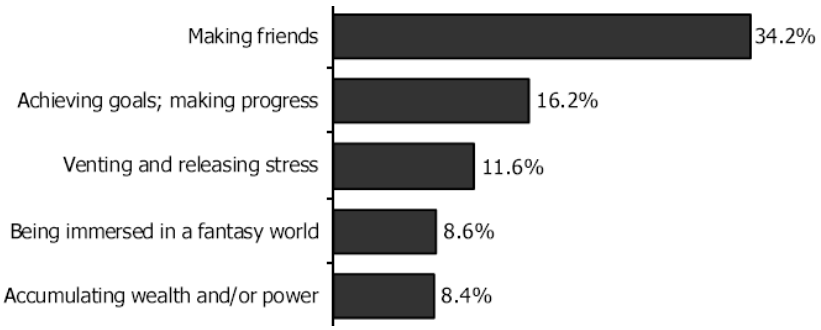

Figure 6: Yee (2003) responses to Most Important Aspect of MMO Games (n=2850)

Friendships, bonds of affiliation and identification developed in MMO environments were viewed by customers as both substantial and meaningful with Yee (2006) noting that the high pressure environment of interaction required in end game scenarios by the MMO products creates a unique bonding environment for customers with their in-game groupings. Comparable findings are also found in other forms of entertainment products. In sports entertainment, sports fans bond and identify together through the

medium of mutual support of their team (Sutton et al., 1997) while Bhattacharya et al. (1995) in the completely different context of art museums membership found interaction, contact, affiliation and identification all similarly to be important issues.

These consumptive customer support groups (Bhattacharya et al., 1995, p.55) are seen as a powerful way of creating and fermenting identification and commitment, with these groups having a wide variety of names in marketing literature such as fan clubs (Sutton et al., 1997) and virtual consumption communities (Evans et al., 2001; Koh and Kim, 2004). In MMO entertainment products the name used for the consumption support group can also vary usually in accordance to the theme of the game product, be it guilds (in the heroic-fantasy themed World of Warcraft), Supergroups (superhero themed City of Heroes) or Corporations (Space-trading themed Eve Online). The concept is the same though; they are communities of likeminded individuals based around a consumption activity (Cova and Cova, 2002; Cova et al., 2007).

Participation in the group is a key element in producing commitment. Empirical evidence from investigations into consumption support groups in virtual online settings from Koh and Kim (2004) found a strongly significant correlation between community participation and loyalty towards the community service provider, and they highlighted the positive beneficial outcomes of *"…group cohesion and unity, members' feeling of ownership of the virtual community, members' loyalty to the community, and organizational citizenship behaviours"* (p.158). Similarly, Sutton et al. (1997) found that increased levels of sports fan identification through participation led to a decrease in price sensitivity and a decrease in performance sensitivity. Therefore, mere membership in itself may not be a sufficient indicator of identification and commitment, with active involvement and contact with the support group displaying a greater degree of weight (Bhattacharya et al., 1995).

Studies into the key variables in consumptive community support groups identified four elements; membership, influence, needs fulfilment, and emotional connection (McMillan and Chavis, 1986; Muniz and O'Guinn, 2001). In particular it is the needs fulfilment and emotional connection notions, which are comparable to Dwyer et al.'s (1987) *"high motivational investment buyer-maintained"* (p.14) relationships, that are seen to move the buyers intentions beyond the short term transactional to long term relational. These are discussed by Egan (2008) as *"higher-level relationships"* (p.52), a type of relationship which is seen to transcend the customer regarding the purchase objectively, and are deeply emotional relationships which promote attachment and affinity (p.53).

These concepts are also analogous to the findings of Sutton et al. (1997) which posited that increasing levels of identification and the benefits the customer receives from this affiliation leads to higher levels of personal involvement and enjoyment. The factor of *"community affiliation"* (Sutton et al., 1997, p.19) was seen as the most powerful correlating factor with fan identification and commitment, community involvement and membership giving benefits to the participant in fulfilling the *"fans' need to belong"* (p.19). As Sutton et al. (1997) discuss *"This component is potentially the most instrumental in building fan identification, and, consequently, has the strongest long term effects"* (p.19). Fan social groupings and identification effects as discussed by Sutton et al. (1997) have subsequently been developed into areas such as arts patronage (Swanson and Davis, 2006) and even television viewing (Bennet et al., 2007).

On the basis of this literature, and Churchill's (1979) recommendations of an iterative approach to constructs, this study conducted preliminary work. This was conducted while investigating the wider implications of stigma in MMO games, with a customer grouping allowing access to their online discussion forums for observation and posting (Grundy, 2008a). In this preliminary work it was found from observing the postings made that customers did display intense loyalty to both their fellow customers in the grouping and identified

strongly with the grouping itself. This preliminary exploratory work was reinforced by Yee's (2006) similar findings regarding identification effects in guild groupings and created an understanding of the nature of what it meant to be a customer of a MMO game in a grouping. This led to a working definition of the construct which is based on Sutton et al.'s (1997) sports fan identification and affiliation definition. This was then further refined though the iterative feedback of participants in the development of the pilot questionnaire, who identified the inclusion of the perception of reciprocal opinions as an important evaluative element.

Group Social Benefits is…*the positive perceptions of group affiliation and feelings of identification that a customer has with his in-game social grouping of fellow customers. The perception by the customer that the social grouping has a positive value that will lead to in-game achievement and/or satisfying social interactions. This may also include the perception of positive reciprocal opinions by the other group members as to the customer's value to the grouping.*

Box 3: Operational Definition of Group Social Benefits

In keeping with the perceptual nature of both Yee's (2006) investigation and Sutton et al.'s (1997), the definition itself is based on the perceptual, not the actual, with customers' perception of their group affiliation and their positive perception of its value being important. How a customer is actually viewed by his fellow group members in un-important to this study's examination of why the customer re-subscribes, only how he perceives this is seen as important. Though, it is acknowledged, if a negative perception gap between perceived and actual opinions is closed though an interaction, this could be a significant critical event in the perception of the group benefits value.

3.3.2.2 Construct Domain of Metagame Benefits

In MMO games, as Steinkuehler and King (2009) explain, involvement in the game goes well beyond just actually playing it. It extends *"…to include an online world of game-related fandom such as web sites, chatrooms, wiki, blogs, and e-mail"* (p.48). This study takes Yee's (2006) definition of these

activities as the *"Metagame"* (p.11), a word literally meaning beyond-the-game. Playing the game is one route for the customer to gratification and satisfaction, however if the player comes across something he cannot instantly resolve in-game, or wishes to know more about something in-game, the internet is just a quick alt + tab on the keyboard away (Steinkuehler and King, 2009). As Hall (2006) explains in the diagram below, this can create a gratification cycle in itself beyond the game.

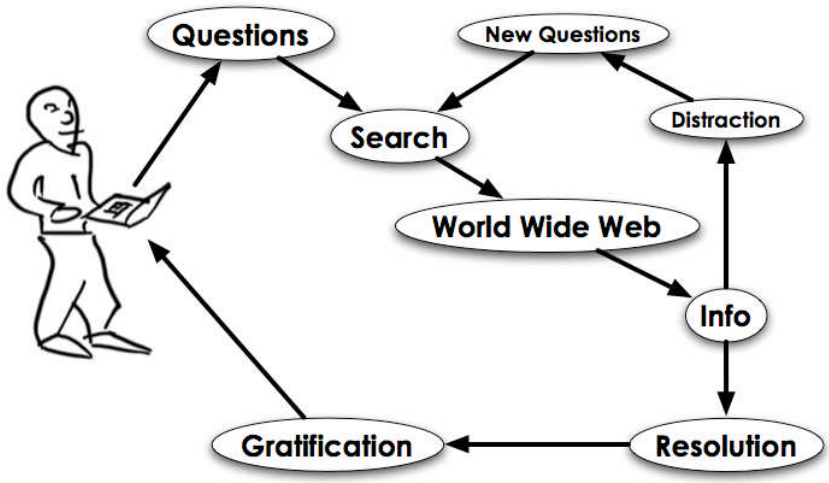

Figure 7: Hall's (2006) cycle of exploration and gratification experienced by computer users during web searching

Steinkuehler and King (2009) explain that these beyond-the-game activities can involve a range of actions from debating the merits or demerits of certain avatar classes on message boards, to seeking information, to just spending time discussing things that the participant enjoys with a collective of likeminded individuals. To link this into Hall's (2006) cycle, a customer may have a particular query, search for it on the internet, spend enjoyable hours distracted reading though websites, forums and such forth and then return, gratified, to the game for further in-game enjoyment experiences. Thus game-related gratification can come from two sources, from in-the-game playing of the product, and further satisfaction from beyond-the-game activities.

Yee (2006) notes that

> *Playing an MMO is more than just about the time spent within the game. Many players seem to spend time reading and posting on forums, managing guild websites, or looking up FAQs and guides that others have written – activities that are very much a part of their MMO game-play* (p.11)

Furthermore, Yee's (2006) examination of 2658 respondents found that 70% of MMO customers use internet forums at least once a month (36% on a daily basis). The time spent in these metagame activities can also be considerable, with Yee (2006) finding that customers spent, on average, 3.5 hours a week *"…reading up on game-specific information"* (p.13) and an additional average of 3.55 hours a week *"reading or posting on forums"*. In addition to that average of seven hours, a customer in a MMO guild (87% of the 2658 respondents) usually spent around 2.7 hours a week *"reading or posting on their guild's website"* (Yee, 2006, p.13) and another hour a week *"managing guild related tasks"* (p.13).

> *In other words, the average player spends about 10.8 hours each week performing game-related tasks outside of the game.* (Yee, 2006, p.13)

Steinkuehler and King (2009) explain that these beyond-the-game activities can actually become integral to the experience of the customer, with in their study, participants voiced opinions that *"i wouldn't survive without WoW head (sic)"* (p.52). Wowhead.com is just one example of a well-travelled community-created and maintained database website, a site which is neither maintained nor supported by the makers of the game product to which it relates. Other types of MMO community artefacts include podcasts, videos, web forums and news informational sites which a customer may access. None of these are necessary to play the game, however if customers do so, and involve themselves in the domain of the product, they are displaying evidence of activities which would be expected to be associated with both further relationship benefits (gratification of resolving issues that interest them) and higher levels of commitment (Gwinner and Swanson, 2003).

Even in tangible products, consumptive community activities can create relational benefits beyond mere purchase of the product (Evans et al., 2001; Cova and Cova, 2002; Gwinner and Swanson, 2003; Cova et al., 2007). For example Swaminathan and Reddy (2000, p.385) discussed the effect of Harley-Davidson rallies on the purchasers of those motorcycle products and concluded that the social and personal benefits of the group association went far beyond the mere tangible benefits and added to the commitment felt for the product. Similar findings are seen in studies into river rafters (Arnould and Price, 1993), sky divers (Celsi et al.,1993; Schouten and McAlexander, 1995) and Warhammer Model Gamers (Park et al., 2007). As such, it is seen to be in the product or service producer's economic best interests to promote, facilitate and actively encourage *"both electronic and personal interaction forums"* (Bolton and Bhattacharya, 2000, p.23) in which customers can share information and socialise, as these forums add value beyond the mere product or service itself. "Forums" is used by Bolton and Bhattacharya (2000, p.23) in its classic sense to denote any *"medium of open discussion for voicing of ideas"* (Cambridge Dictionary, 2008) with internet based forums or discussion groups being a sub-set or grouping of forums.

These interactions foster and encourage an involvement in the product and product activities beyond the normal boundaries and loyalties of a transactional purchase. Kozinets (2007), for example, investigated the internet-based *"consumer tribes"* (p.192) surrounding the Star Trek brand, examining fan-fiction writing activities, and found customers willing to move well beyond just the act of reading about the TV show. Instead many of the participants of this grouping spent hours writing stories, by-fans for-fans, based in the fictional Star Trek intellectual property universe and usually posted on fan-based websites. These customers displayed very high levels of product and brand commitment. This type of beyond-the-product activity and involvement is conceptually very similar to the personal benefits gained by Harley-Davidson owners who go to rallies and spends hours (Swaminathan and Reddy, 2000) cleaning, polishing and chroming their

bikes. It is also similar to the benefits that a very highly involved sports fan may have in talking about matches or games, player attributes, motivations and such forth with his friends and colleagues (Gwinner and Swanson, 2003).

The operational definition used by this study of Metagame benefits therefore regards the involvement a customer has with the product when not using it. Steinkuehler and King (2009) indicate that this MMO beyond-the-game activity is customer interaction led, much in the same way as Swaminathan and Reddy (2000) found that Harley-Davidson owners actively need to join the fan groups or associations and become involved. The definition of metagame benefits is directly taken from the concepts of Domain Involvement presented in Gwinner and Swanson (2003, p.284). This definition is then further adapted to the MMO context based on Yee's (2006) definition of the metagame and Steinkuehler and King's (2009) later examination of what beyond-the-game activities consist of.

Metagame Benefits is…*the level of involvement that the customer has in the domain of the game product when not using the product. This can include the level of involvement in product related forums, networks, consumption groupings or community outputs, though importantly this can be both a passive involvement or an active involvement.*

Box 4: Operational Definition of Metagame Benefits

The definition revolves around the important element of customer involvement. Importantly, involvement in the internet community of a MMO game can also be a passive as well as active affair (De Valck et al., 2009). As Steinkuehler and King (2009) indicate, involvement can be as simple as constantly accessing information though informational database sites and fan sites, these may be web forums that the customer never actually posts to or comments on, but actively reads and finds useful in resolving his issues.

3.3.2.3 Construct Domain of Past Satisfaction

In Morgan and Hunt's (1994a) Commitment Trust Theory Model, experienced past satisfaction is implicit to the relationship benefits (p.25)

construct as it is integral in the assessment by the relationship partner of the value of the expected relational benefits to them. With the addition of this precursor and influencing factor as an explicit construct, this research contends that the Morgan and Hunt (1994a) framework's implicit inclusion does not represent the ongoing nature of the subscription based business relationship in MMO games, especially by not considering importance of expectations of gratification in the entertainment context (Wu et al., 2009). This study argues that expectations generation is fundamentally different in business-to-business relationship contexts than entertainment based business-to-customer mass market relationships (Gruen, 1995).

The concept of expectations is an emergent one from the marketing business-to-customer subscription relationship literature (Bolton and Lemon, 1999). The accumulation of previous satisfaction is seen as an important driver of the customer's levels of anticipated satisfaction fulfilment in entertainment products. In a sample of 490 households which all subscribed to interactive entertainment subscription television services, Bolton and Lemon (1999) found that overall satisfaction from the previous time period, and anticipation of that satisfaction to continue, had a direct impact on next period usage as shown in Figure 8 below.

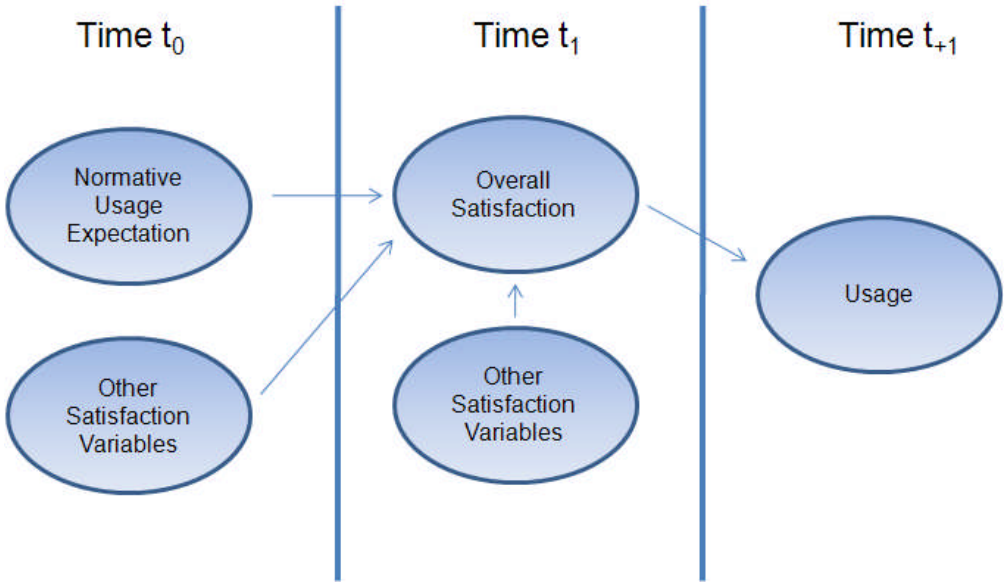

Figure 8: Bolton and Lemon (1999) model

The commitment of individuals who have been highly satisfied in the past, and who have the expectation that they will continue to have that level of service, is higher than that of individuals who have had less positive past experiences (Bolton and Lemon, 1999). *"Customers who have high levels of cumulative satisfaction with a continuously provided service in the current time period will have bigger usage levels of the service in a subsequent time period"* (p.118). Consequently, consistent with the findings of Bolton and Lemon (1999), this study concludes that the expectation levels created by satisfaction in a previous time-period will have a direct impact on next period Commitment. Past Satisfaction in an entertainment environment sets the anticipation level of customers regarding their expectations of future satisfaction.

However, expectations in the Commitment Trust Theory model are defined in the business-to-business context as being in the domain of the Trust construct (Morgan and Hunt, 1994a). As Gruen (1995, p.451) explains though, a business-to-business relationship is very different from the business-to-customer relationship. Personal selling, close working relationships and multiple organisational linkages between numerous individuals all mean that business-to-business relational exchanges have a very different perception of expectancy. As both partners are closely linked, communication is more frequent and takes place both formally and possibly informally. Dissatisfaction can be communicated in a much more structured way, and feedback received much faster and more frequently. The substance of the relationship, and both the competence expectancy and benevolence trust one places in the relationship would thus logically be expected to be much more closely linked, due to the closeness of the communication and the rapid build up of experience based on relationship interaction. The relationship, and the product, produce or output of the relationship, are also usually very firmly linked, with the size of the investment by both parties usually meaning that relationship partners are very concerned about making the relationship work and actively pursue activities to resolve issues (Gruen, 1995).

In contrast, from a customer standpoint in a business-to-customer mass market relationship, the perspective is very different (Gruen, 1995, p.451). The relationship is a very distant one, with the customer's knowledge of the company itself based on marketing information delivered to the mass media, brand image or legalistic information sold with the product. Even very loyal customers would expect to have very few points of interpersonal contact with the selling company itself. Furthermore, in most countries the benevolence trust that a customer places in the company is perceptually coloured by consumer protection laws which are usually unbalanced to favour the consumer. There is an underlying legalistic structure that a customer can place trust into, in spite of any feelings towards the company (Gruen, 1995).

The goals and expectations of the customer in an MMO gaming relationship are also much more simplistic than a business-to-business relationship (Wu et al., 2009). As an entertainment product, relationship value in online gaming sits within a complex value framework where *"emotional well-being"* (Castronova, 2003, p.127) is in conjunction with a very basic behavioural aim of *"people do things that make them feel happier"* (p.127). Customers buy entertainment products to generate satisfaction from their purchases and products; a goal which is much more simplistic than the more complex aims of necessity product purchases or the competitive advantage aims of business-to-business relationships. As an entertainment product, despite the perceptions of the benevolence in the producer of the product having relevance, this must be balanced against the customers goal of satisfaction and gratification, referred to in the literature as product elicited positive effect (Bloemer and Odekerken-Schroder, 2002). If customers view, based on their previous experience, that an online game will no longer be enjoyable or fulfilling to them, no matter what their views of the benevolence of the selling or producing games company might be, or the relative cost of the games to their income level, the value the customer places on the relationship will be expected to be low (Yee, 2006). From the MMO gaming, entertainment based, business-to-customer perspective, competency and delivery of fun is

fundamentally separate from the trust placed in the benevolence of the deliverers of that fun.

An important factor of expectancy is also importance of investment size (Ganesan and Hess, 1997). In a business-to-business relationship this is usually large, but from a customer's perspective in an MMO relationship, the financial investment in an MMO product is usually very small; the typical MMO monthly subscription costs around £10 ($15) a month. Investment size is important to expectancy as a person may happily lend a friend, who has lost his wallet, some lunch money or money for a cab ride home, but larger sums may significantly alter the perceptions of benevolence trust and competence based trust regarding the possibility of repayment. With the combination of so little financially at stake and consumer protection laws to act as a safety net in case things do go wrong, the focus of the nature of expectancy is very different in an MMO setting from the high financial investment business-to-business relationship. The downside risk is much smaller, and so logically one would expect the focus of customers to shift more towards the gratification goals of the investment (Gruen, 1995).

The monthly nature of the MMO subscription itself is also important. This creates a very different contextual environment for expectations development than in different types of relationships. Expectancy, both of benevolence and competence, is built on positive episodes or critical events (Egan, 2008, p.158). In a business-to-business context, the relationship and lines of communication are much tighter, and the focus is usually coming from both parties to make the relationship work, with this as an ongoing, continuous experience across many different actors (Gruen, 1995, p.451).

In contrast, if the on-going subscription is going smoothly and without issue, an MMO game customer will only experience the technical product competence, the satisfaction derived from the purchase is the customer's experienced focus of the relationship. This is an experience in which they have a critical event at the end of every month to test their commitment towards. Conversely, the customer's experience of the benevolence or

caring nature of the company is seldom accessed, as that side of the relationship isn't tested until something goes wrong; which may be never. For most customers their perceptions of the benevolence trust in the company is based on just that; perceptions, perhaps even unrealistic or unsubstantiated ones which contain a cognitive bias (Li et al., 2006). Customers will build from their assumptions of norms and shared values, and marketing information they have received, a perception of the company's benevolence that, critically, they may never experience or have tested.

Clearly then, the types of expectancy trust, perceptual benevolence and experienced competence, are fundamentally different to the customer (Wu et al., 2009). The MMO customer experiences a continuous monthly re-subscription event which prompts a decision point in which the customer will evaluate his satisfaction experiences. For some customers, indeed for the vast majority of customers, as MMOs are designed to run as smoothly as possible (Bartle, 2003), as 12 million customers all complaining at once over a problem would be an unmanageable customer service issue, benevolence will always just be an untested perception.

Therefore due to of the combination of the small size of the investment, the investments gratification focus, the safety net of customer protection laws, the monthly experiential nature of the feedback and the mass market business-to-customer nature of the entertainment product, this study argues competence expectancy and benevolence trust are very different in the MMO context (Wu et al., 2009). Preliminary studies confirmed that experienced satisfaction, and the future expectation of satisfaction based on past events, was separated for MMO gamers from feelings of company benevolence. In particular, the netnographic study (Appendix B) found that customers were willing to ignore many kinds of company behaviours they perceive as annoying as long as they still felt satisfied by the product.

Past Satisfaction is…*the accumulation of previous product elicited positive effect experiences that enable customers to have confidence in their expectancy of future continued gratification.*

Box 5: Operational Definition of Past Satisfaction

This study's operational definition of past satisfaction is based on Ganesan and Hess's (1997) and Gruen's (1995) definitions of the competence expectancy aspects of trust, and Bloemer and Odekerken-Schroder's (2002) definition of product elicited positive effect. This definition focuses on experiences. MMO product past satisfaction is an experienced psychological output for a customer who has subscribed many times, and relates to the confidence that these experiences have created in future gratification. This definition of satisfaction expectancy specifically excludes expectations of benevolence, which is defined by the Trust construct of this study.

3.3.3 Shared Values

The concept of shared values being highly contextual is a recurrent theme within published Commitment Trust Theory studies. For example, Holdford and White (1997), when investigating pharmaceutical students at university, found that high levels of understanding of shared values between the relational partners, in this case, students and their professors, allowed the students to envisage more accurately the reasoning behind actions and behaviours, which engendered trust, with a significant correlation found between these two variables (p.250). In contrast, in the not-for-profit sector, MacMillan et al. (2005) found that that *"funders need to believe in the cause of the NPO"* (p.815). Thus donors, prior to donation, have observed or experienced the actions of a potential relationship partner and from these perceptions *"…develop a view of how the partner will act in the future"* (p.808), with perceptions of, and expectations of, shared values found to be strongly correlated with trust.

The environment which a shared value operates in is therefore important to the definition of what the shared values are. Pharmacy students who have higher shared values with the professors marking their work are more likely

to put their mark down to hard work (or lack of) (Holdford and White, 1997). That concept of shared values does not easily translate into completely different environments.

The MMO games market itself has a unique context: the game and rules of the game itself. As Taylor (2002) describes these are the rules put in place by game designers and they represent the code of conduct enforced upon customers, who are expected to comply with the game designer's wishes. These rules are articulated through the Terms of Service (TOS) and End User Licence Agreement (EULA) that a customer must digitally sign before accessing the game product (Taylor, 2002, p.233).

Failure to comply or obey these rules can lead to a number of punishments including temporary or permanent banning of the customer's account. Taylor (2002) is clear that the customer is on a very uneven playing field in this, the company has all the power and while customers may have *"romantic"* (p.233) notions regarding their rights, they have nearly none. Indeed, decisions to ban a customer are *"...generally without recourse and certainly never with the benefit of third-party mediators"* (p.233) with the games company being a judge, jury and executioner in its own virtual world. Taylor further explains that these examples of power *"...travel quickly through the grapevine and across user bulletin boards serving as powerful reminders to other users about who has the ultimate say in defining the terms of participation"* (p.233). This behaviour extends to even high profile players and guilds, with it not unknown for twenty or more players to be banned at a time for very minor technicalities which are seen to break the TOS and EULA.

This study contends that customers are able to separate in-game shared values, which apply to a narrow ruleset as defined by the game designers (termed by this study: Shared values with the game rules), from their expected norms and values of being a customer and purchaser of a product (termed by this study: Shared values with Game Company). These general customer norms and values being further reinforced by the legal protection

and support framework; support which is usually biased towards protecting the customer (Gruen, 1995, p.451).

The domain of the shared values with game rules construct is based on identification, internalisation and compliance, three concepts central to Kelman's (1961) inter-related processes of opinion formation. Kelman's (1961) work is also the basis of Morgan and Hunt's (1994a, p.25) definition of the domain of their Shared Values construct. This study contends that only the Shared Values with game rules which is compliance based though, that a customer treats their out of game customer service based relationship very differently than their in-game compliance based one.

Customers display an ability to separate the component parts of a business or service, with a customer clearly able to distinguish between in-game values and general customer service values shared with the company. Ganesan and Hess (1997) refer to this differentiation as the *"levels of trust"* (p.440). As Kim and Ahn (2005, p.196) explain, this is particularly seen in marketing literature regarding e-commerce and e-products in general. A customer may for example, trust a company, based on past experiences, and yet not trust their internet website to purchase from as they deem it unsafe. The customer has thus separated the delivery of the product into its component actuators: the company, the delivery process and the product itself. This is much in the same way that movie theatre goers may separate the expectations they have in the gratification delivery ability of the movie from the assumed norms they have regarding the seat quality of the cinema itself.

3.3.3.1 Shared Values with the Game Rules

In describing the rules in which MMO players abide by Lastowka (2009) starts with another game: golf. Golf has its own complex set of rules and its own *"staked out special fields and magic circles"* (Lastowka, 2009, p.8) and golf players know when they should abide by these rules when they're on the course, just in the same way that tennis players know that they should abide

by the rules of tennis when they cross the line onto a court. These are *"neatly marked linear boundaries"* (Lastowka, 2009, p.8) for players, one side of the line is real life, the other side is where the rules of tennis apply. These rules serve to order human activity and represent a firm separation of game from ordinary life. In an MMO this crossing of the line is when the customer logs into his avatar in the video game world (Taylor, 2002).

As Taylor (2002) describes, the TOS and the EULA define clearly for the game customer what is right and what is wrong in the virtual game world. A customer's shared values with these rules is not a negotiation though, it is an acceptance and compliance. This study, similar to Morgan and Hunt (1994a), bases compliance upon the work of Kelman (1961) in opinion formation. Kelman's (1961) research conceptually argued that in fully understanding the reasons and conditions under which opinions have formed, researchers can better understand the values and opinions themselves. The environment and context are seen as integral parts of that understanding (Kelman, 1961, p.60). Kelman's (1961) conceptual framework has been widely used (O'Reilly and Chatman, 1986; Vandenberg et al., 1994) and cited in a diversity of academic fields ranging from social welfare (Yang and Barrett, 2006), survey response rates (Bartholomew and Smith, 2006) and celebrity advertising (Choi and Rifon, 2007). Kelman's (1961) and later O'Reilly and Chatman's (1986) studies concentrated on three inter-related processes of opinion formation: identification, internalisation and compliance.

Identification is where the individual (or organisation) attempts to adopt or mimic a certain behavioural response *"...because this behaviour is associated with a satisfying self-defining relationship"* (Kelman, 1961, p.63) sometimes to create, sustain or nurture a commitment to a relationship (possibly reciprocal) with a certain person, group or organisation. Many examples can be given here regarding professionals adopting a set of moral codes or obligations that are defined by their profession, or the adoption of social norms in an interest group (Kelman, 1961, p.63). In the MMO game environment, the creating and sustaining parts of the identification concept

are key. Customers must comply and press “accept” to the EULA and TOS before they can enjoy the product, failure to do so means they can’t access the product. Thus, to access the satisfying experiences of their entertainment product a customer must (superficially at least) display an adoption of the enforced rules of the games company. Furthermore, to sustain these satisfying experiences from their entertainment product they must display behavioural responses which mimic the desired responses required by the game designers though continued rule adoption (Lastowka, 2009, p.8).

In the concept of internalisation the individual (or organisation) perceives the relational values and norms congruent with his own and his induced behavioural responses towards relational commitment are thus logical and value-creating within their own framework. Importantly, as Kelman (1961, p.65) makes clear, this commitment can be on both rational and irrational grounds, the important concept being the perceptions of both credibility and value congruence (p.66). Lastowka (2009, p.8) describes how in the MMO and video gaming context this internalisation is seen by acceptance by a player of the *“Magic circle”* (p.8) of playing a game. Much in the same way that a football player has internalised the value of a goal as having a good value, and scoring an own goal as having a negative connotation, a MMO player internalises through the game play and acceptance of the rules what the values and norms are (p.9). Internalisation in MMO game rules represents when customers agree with the boundaries of the game, they have accepted the *“Magic circle”* (p.8) of playing a game and accepted the rules as part of that. This acceptance though can be either a willing one, or one groomed though the process of induction which is seen as a key part of enabling compliance (Kelman, 1961).

Compliance concerns the external demands of a specific setting (or organisation) and their ability by either surveillance (real or perceived), and subsequent punishment (again, real or perceived), or conditioning to control the behaviours of the individual. In creating compliance, induction is key (Kelman, 1961, p.62), as the individual’s perceived structure of rewards and

punishments must be altered to produce the desired (by the setting or organisation) induced behavioural response. This response thus, when the individual complies, is not (necessarily) an internalisation (i.e. they believe in what they are doing) of the induced behaviour (though it can be) or a belief in the responses content (again, though it can be) but instead a response by the individual "*because it is instrumental in the production of a satisfying social effect*" (Kelman, 1961, p.62) within the boundaries of the externally defined reward (and punishment) structure (Kelman, 1961, p.63).

Shared Values with Game Rules is… *the extent to which the customer perceives the in-game rules as important or unimportant, appropriate or inappropriate, and right or wrong. The extent to which the customer finds the perception of those rules to be congruent with their own beliefs of right and wrong.*

Box 6: Operational Definition of Shared Values with Game Rules

For the MMO environment this study's definition of the domain of the Shared Values with Game Rules construct is firmly within the *"magic circle"* which Lastowka (2009, p.8) describes; only in-game rules are important to this construct. This study bases this definition on Kelman's (1961) opinion process concepts of internalisation, identification and compliance, with the internalisation of perceptions of right and wrong the basis of the definition.

3.3.3.2 Share Values with Company

As Lastowka (2009, p.8) describes, MMO players, and most game players in general, are very much able to differentiate the environments they are in. Customers logged into a game see themselves as players, locked into the rules of the game. Outside of the game though and outside of the *"magic circle"* (Lastowka, 2009, p.8) of the game world, the player is a customer, a customer with a very different perspective on norms and values. Much in the same way, to continue Lastowka's (2009, p.8) golfing analogy, that a golfer will act and respond to a completely different set of social norms and values when they are off the course.

The general customer service norms a customer has usually regard the formation of a confidence in the benevolence or caring attitude of the relational partner towards them. Heide and John (1992) describe these as "*supportive norms"* (p.33) which can provide *"confidence"* (p.33) in a relationship that problems will not occur or, if they do, the problem can be resolved quickly and satisfactorily (p.32).

Expectations and perceptions are the key to norms. These emergent norms are in addition to the generally expected societal and business norms, and perceptions of such norms, that already exist (Dwyer et al., 1987, p.18), with these general customer service assumptions and norms, many of which may be backed with legalistic consumer protection law (Gruen, 1995), key to how a customer initially relates to the relational partner, and how the relationship evolves over time.

As Dwyer et al. (1987) discuss *"Relationships evolve through five general phases identified as (1) awareness, (2) exploration, (3) expansion, (4) commitment, and (5) dissolution"* (p.15) with each phase being a major transition point in how each relationship partner views the exchange. Confidence of benevolence and caring in Dwyer et al.'s (1987) conceptualisation sits between the exploration and expansion stages, and lies in the creation of perceived norms of interaction through the development of expectations. Dwyer et al. (1987) posit that during this exploration phase of *"norm development"* (p.17) there occur and emerge *"…ground rules for future exchange"* (p.17). The norms development phase builds confidence that these expectations will be fulfilled, leading to *"expectations development"* (p.18) through experience. While development, control and manipulation of expectations can occur through use of implicit *"stimulants of trust (e.g. brand names, trademarks, logos)"* (Dwyer et al., 1987, p.18) and explicit guarantees; direct experience is seen as the principal basis for judging trustworthiness (p.18).

Dwyer et al. (1987) propose that, through an accepted (or perceived) set of starting customer service norms and the process of expectations

development, based on experience shared values regarding service levels, and subsequent satisfaction are created. These facilitate the perception of fulfilment which engenders trust in the relationship.

Shared Values with Company is… *the extent to which the customer perceives the company's behaviours, goals, and policies to be congruent with his own. A basic set of underlying assumptions perceived by the customer regarding the company's reciprocal perception of him as a customer.*

Box 7: Operational Definition of Shared Values with Company

This study's definition of the domain of the Shared Values with Company construct is therefore based on Dwyer et al.'s (1987) and Heide and John (1992)'s conceptualisations of norms development, both of which were also the foundations of Morgan and Hunt's (1994a) definition of Shared Values. The basis of the definition is perceptually focused with the customer's view of the company (with may be susceptible to cognitive errors and bias) being the important driver in the relationship. The actual situation (which may be different) isn't of relevance to the customer's re-subscription decision.

3.3.4 Communication

The operational definition of the communication and relational channels discussed in Chapter Two has a profound effect on the communication construct. Customers faced with three different communication channels treat each channel in a different way, though each of the three comes under the construct umbrella or family of communication. Customers treat and acknowledge customer service interactions in a very different way than the other communications channels. As Shneiderman (2000, p.58) discusses, customers are very able to *"Separate out the trust for a person from expectations about an object or process"*. Additionally, in the MMO environment, the customer service interaction is between a specific person (a customer service representative) and the customer regarding a specific issue. The context and goal of the customer in the interaction is very precise.

Thus the coverage of the communication domains in this context is equally very narrow and specific.

3.3.4.1 In-game customer service interactions

As Holsapple and Wu (2008) found in a study of 253 online gamers, perception, confidence and expectations of quality in the customer service interaction is what is all important (p.50) to customers and this contributes towards the development of trust in the relationship (p.56). This study's definition of direct customer service interactions regards just the perceived confidence that a customer has in the resolution by the representative of his issue. This definition specifically applies to the perception the customer has of the ability of the customer service representative to resolve the issues arising, which in an MMO context, is the only reason to contact a customer service representative (Holsapple and Wu, 2008).

In-Game Customer Service Interactions is… *the perceived confidence a customer has that the customer service representatives will respond in a timely manner which will resolve his issue. The perceived confidence a customer has that if he is unsatisfied he can complain about the customer service he has received.*

Box 8: Operational Definition of in-game Customer Service Interactions

The domain also covers the perception of the customer that if he is unsatisfied by his interaction that he can complain about it. A high perceived confidence that the customer has in the customer service interactions that he will receive adds to the trust he has that the relationship is a positive and benevolent one.

3.3.4.2 Availability of in-game Information

Due to the nature of the mass market MMO entertainment product itself, which contains its own rules and value systems, there are some unique attributes to be considered (Steinkuehler and King, 2009), with some customers spending upwards of seven or eight hours a week interacting with game information through reading guides, class information or similar

activities on message boards and database websites (Yee, 2006). As such, the perception of availability of game information represents a unique communication construct tied firmly to this study's operational definition of the network interaction channels. This construct firmly relates to the community members' interaction with a knowledgeable community of fellow members, and the perception that the consumptive community can help them resolve their in-game issues (Cova and Cova, 2002; Cova et al., 2007).

Without the perception that there is information out there for them to engage with, customers will logically be less involved in the domain and exhibit less trusting behaviours. Industry commentators such as Jennings (2010) have remarked that some games have strongly dis-interested customers by making in-game information oblique, hard to find and difficult to interpret. A lack of information, particularly about in-game items for avatars, can also impact on the value system that players are expected to internalise in playing the MMO. Without a clear way of understanding the value of items it is difficult to understand why you should want them.

Jennings (2010) gives the example of Funcom's Age of Conan MMO game which, at launch, was highly oblique to the customers as to the value of in-game items and information. This resulted in the customers, many of whom were used to large amounts of information regarding items which added value to the avatars in other MMO products, finding it difficult to understand or trust the achievement hierarchy of the game. This failure to communicate effectively contributing to the product's failure to retain customers (Jennings, 2010).

Availability of In game information is… *the perception of the customer of the availability of product related information about both the current game and future product developments.*

Box 9: Operational Definition of Availability of in-game Information

This study's definition of the domain of the construct focuses on the customer's perceptions of product related information being available and useable (Steinkuehler and King, 2009). The perception of available

information regarding both the current and future developments of the game adds to the trust and confidence that the customer places in the gaming product.

3.3.4.3 Perceptions of Game Developers' Communications

In MMO games, *"the developers'"* as James and Walton (2004, p.33) discuss, are the consumptive community *"lightning rods"* (p.33), particularly when changes to the game are not fully explained. Team managers, Match Officials, and even the Board of Directors ("Sack the Board") can all be anthropomorphised to have motivations, agendas or shortcomings which spectators or customers attribute to them (Sutton et al., 1997). A negative change (known in-game as a "nerf") to an avatar class in an online game like World of Warcraft may be attributed by some customers to the "fact" that the developers "hate" that class (James and Walton, 2004). As White (2006) discusses, this can often be due to the simple issue of incomplete information or perception on the part of the customer, leading to attributed causal asymmetry. The team is looking dispirited and losing, thus we have a poor manager or, the game designers have "nerfed" a class, thus they hate that class.

This is not an unknown phenomenon in products which inspire emotional bonds or attachment. For example, as Biel (1997) describes, the introduction of New Coke in 1985 by the Coca-Cola Company was an unmitigated PR disaster with the change resulting in *"Half a million letters and phone calls"* (p.3) with many customers expressing outrage at the Board of Directors personally. In an extreme example Safer (2008) describes how when a fault was found in the Nintendo DS game Puzzle Quest the CEO and design team of the game received six death threats, and a bomb threat, from *"passionate"* (p.1) customers.

In the MMO environment possibly one of the best known MMO game communication disasters is described by Jennings (2010). In 2003 Sony

Online Entertainment decided that, to encourage more people to subscribe, they would completely alter the achievement and value system in the game product to effectively make the game a lot more accessible. This did not go well.

> *…thousands of players quit, and the expected hundreds of thousands of new players failed to materialize, primarily because for months every gaming forum on the Internet was full of angry spittle-flecked hatred for everything SOE and Lucasarts stood for.* (Jennings, 2010, p.2)

As Jennings (2010) explains this was a marketing, PR and communications disaster for Sony Online Entertainment, with thousands of *"very angry"* (p.2) customers actively dissuading other potential customers from buying and playing the product.

Perceptions of Game Developers' Communications is…*the perception of the customer of the game developers' benevolence and responsiveness to product and customer related issues.*

Box 10: Operational Definition of Perceptions of Game Developers' Communications

The domain of the Perceptions of Game Developers' construct covers the perceptions by the customers of the benevolence the game developers' have towards both them and their playing experience (James and Walton, 2004). This perception is drawn from the communications that the game developers' and the games company make out to the customer community or directly to the customer through press releases and other forms of mass market communications. It is the perception that game issues will be solved and that the developers' have, at heart, the best interests of the relationship in mind and this contributes towards the building of trust with the business.

3.3.5 Opportunistic Behaviour

MMO gaming has a unique environment that surrounds it concerning a range of services that third parties make available to subscribers, services which are in explicit contradiction of the EULA and TOS which the subscriber

electronically accepts to proceed to play the game. This MMO grey market is often described as “gold-farming” (Heeks, 2008), or unauthorised real money trading. Use of this grey market represents in the Commitment Trust Theory model an Opportunistic Behaviour on the part of the customer. In this unauthorised Real Money Trade (Heeks, 2008) customers spend real currency via unauthorised third party channels to buy in-game assets or services. This should be entirely separated from authorised Real Money Trading (Second Life and similar products) in which the business actively encourages users to trade real money for virtual assets. In authorised trading, the intellectual property owner profits, in unauthorised trading the intellectual property owner gains nothing.

Heeks (2008) summarised previous studies and literature into a description of the main activities of “gold selling” companies (a catch-all name as many different game products have different names for their in-game currencies). Some of these activities are quite clear to customers such as:

1. Selling of in-game Currency; real money for virtual asset exchange.
2. Power Levelling; the service of levelling a customer’s avatar for real money.
3. Selling in-game Items; the sale of exclusive or hard to find items or virtual assets for real money.
4. Selling Accounts; the sale of in-game avatars, usually of high quality, for real money.
5. “Escort Services”; taking customers to exclusive in-game locations, usually to gain in-game items.

However other activities can be less than clear to prospective customers:

1. Hacks and Exploits of Game; gaining an unfair advantage, usually to accelerate in-game income generation (“duping” of money or valuable assets for example)

2. Account Hacks; Unauthorised access of a game account for the purposes of sale of the assets of the account or sale of the account.

3. Defraud Purchasers; to take the credit card/other details of customers and defraud them.

Within the Commitment Trust framework the opportunistic behaviours are operationalised through examining the *"perceptions"* (Morgan and Hunt, 1994a, p.25) and reflections of the customer regarding opportunism and opportunistic behaviours (Kelman, 1961). This creates an important implication when examining opportunistic behaviours in that it actually matters very little which opportunistic behaviours are really going on, what is perceived to be occurring is what is important, this perception (or possibly misperception) impacts on a partner's evaluation of benevolent trust (Morgan and Hunt, 1994a, p.25).

The impact of grey markets on perceptions of benevolent trust has been examined by a number of studies. Eagle et al. (2003) examined grey market products which are purchased and incurred problems, with evidence of problems surrounding invalid warranties which can lead to customers' perception of the company brand and product brand being impaired. Furthermore, by the reflexive nature of the brand name free ride (Tan et al.,1997; Keller et al., 1998) that grey marketers use, when the grey marketers promote their products, presumably on different values than the brand owner, the brand value message of the owner may be tarnished and/or confused (Eagle et al., 2003). Classic studies of grey markets have centred on the issue of parallel importing and trademark infringements (Palmeter and Remington, 1988; Cross et al., 1990; Inman, 1993; Gallini and Hollis, 1999; Clarke and Owens, 2000) stemming from free-riding problems (Malueg and Schwartz, 1994), with most studies regarding tangible goods such as guns (Marsh, 2002) and Levi jeans (Antia et al., 2004). However, the business world also sells goods which are also intangible in nature, Antia et al. (2004) for example discuss the grey market for satellite TV decryption access in Canada. Furthermore the most discussed section of the intangible

grey market literature is regarding the internet and *"cyberspace"* (Zekos, 2002). Infringement of copyrights, trademarks and intellectual property by such companies as Napster (Langenderfer and Cook, 2001) and Youtube (Pike, 2007), show the difficulties that modern companies have in managing their digital property.

Opportunistic Behaviour is…*the customer's perception of the equity and fairness of identified customer driven opportunistic behaviour actions.*

Box 11: Operational Definition of Opportunistic Behaviour

This study's operational definition of the domain of the opportunistic behaviours construct is in keeping with Kelman's (1961) internalisation concept and Morgan and Hunt's (1994a, p.25) concentration on perception and internalisation. It is focused on the perception and internalisation by the customer on the concepts of fairness and right and wrong articulated to them by the company. A customer who perceives the breaking of the EULA and TOS to engage in opportunistic behaviours as acceptable is one who would be expected to have lower levels of trust than someone who has opposite views and has internalised the norms and values of the company's codes of conduct (Kelman, 1961).

3.3.6 Current Satisfaction

The ability to continue an ongoing relationship, to retain the customer, is generally believed to be a result of customer satisfaction in a business-to-customer context (Buttle, 1997, p.143). In contrast, perhaps unsurprisingly, in the business-to-business context, satisfaction is not antecedent that Morgan and Hunt (1994a) included in their original model. However Gruen (1995), when adapting the Commitment Trust Theory model to the Business to Customer context was clear, satisfaction is not only an important antecedent, it is also one which directly impacts on both Commitment and Trust.

Satisfaction has many definitions in the literature (Egan, 2008, p.127) however satisfaction as an *"evaluation of emotion"* (Hunt, 1977, p.160) perhaps best summarises the meaning used in this study. In entertainment

products in particular, satisfaction is a key driver of customer retention (Dick and Basu, 1994; Vogel, 2007) with the term product elicited positive affect (or just positive effect) used to describe the feelings of happiness, fun, relaxation that the product brings to the user.

It is clear when examining an ongoing entertainment subscriptions relationship that satisfaction is a key variable (Bolton and Lemon, 1999; Gustafsson et al., 2005) which exhibits a feedback loop with itself as a forthcoming decision antecedent (Oliver, 1997). The customer, on a month-by-month basis evaluates the satisfaction they have derived from his previous month's expenditure and evaluates that forthcoming expenditure.

In the MMO environment there have been many attempts by academics to classify the drivers of satisfaction. Bartle's (2003) four player types and Yee's (2006) taxonomy of eleven motivations are widely used as classifications, and are external, observation based listings of characteristics that customers may display. Within these classification structures however, measurement problems exist. The first issue with these classifications is that customers shift characteristics in a fluid, imprecise way, which in the Bartle (2003) analysis is built into the classification model. The second is that as academic, sociological classifications, these differing motivational categories are both unknown to the majority of customers, and the act of educating the customers to these categories (or asking them to describe themselves as a member of one of the other) may significantly alter the outcomes of any testing through the psychological issue of reactance. Lastly, perceived (or espoused) customer motivations and actual motivations may be significantly different. As Yee (2006) notes a customer may even be embarrassed to admit some reasons to himself. For example, examining Yee's (2006) classifications, the category of *"Escapism—Using the online environment to avoid thinking about real life problems"* (p.774) may be something the customer may not wish to face or discuss.

Consequently, as play motivations are unknown, difficult to measure and a privacy issue for customers, but the outcomes of motivation and satisfaction,

can be known and perceived by the customer, it would be expected that satisfaction is a useful overall surrogate measure for the outcome of play motivation, whatever that motivation actually is. While an understanding of the drivers of satisfaction is potentially interesting, from the business perspective of re-subscription it is the output of satisfaction, the positive elicited affect that the product brings, which is important. This type of approach to defining satisfaction is seen by Bloemer and Odekerken-Schroder (2002) as an outcome-type definition as categorised by Oliver (1989), as opposed to an expectancy definition. This type of outcome-type designation according to Bloemer and Odekerken-Schroder (2002) defines satisfaction in terms of a *"…state of fulfilment, which is connected to reinforcement and arousal."* (p.70), concluding that this type of perspective takes *"satisfaction-as-contentment, satisfaction-as-pleasure, satisfaction-as-relief, satisfaction-as-novelty and satisfaction-as-surprise"* (p.70).

Current Satisfaction is…*a pleasurable level of consumption related fulfilment.*

Box 12: Operational Definition of Current Satisfaction

In line with the definitions of satisfaction proposed by Oliver (1997, p.13) and assumed by Bloemer and Odekerken-Schroder (2002, p.70) this study defines Satisfaction in terms of its consumption related component, its pleasurable element and its fulfilment element. The definition is a *"post-consumption evaluation"* (Bloemer and Odekerken-Schroder, 2002, p.70) of the happiness and fun an MMO customer gains from the consumption activities with both directly (playing) and indirectly (reading about etc.) of their entertainment product.

3.3.7 Commitment

In this study the nature of the relationship has been defined as a membership (Gruen, 1995). Commitment is the bond between the individual and the MMO product producing company, with this bond a link between the product and the customer, which the customer feels is worth the effort to maintain (Moorman et al., 1992; Morgan and Hunt, 1994a). Importantly,

Commitment is seen as a behavioural output which can maintain the relationship when both Trust and Satisfaction either do not function or fail (Moorman et al., 1992; Gruen, 1995). A dissatisfied MMO player may even continue paying his subscription and thus maintain the relationship, however that dissatisfaction would be expected to affect the commitment over time, *"…commitment can operate independently of satisfaction and trust, it is important to note here that the constructs of satisfaction and trust also affect commitment"* (Gruen, 1995, p.454). Gruen (1995) specifically links high levels of commitment to the future intentions of the customer. The more committed the customer, the more likely he is to remain as customer. Trust and Satisfaction affect the Relationship Commitment, but do not themselves affect the propensity to leave.

MMO games have unique methods of maintaining and increasing the level of commitment through the use of the game mechanics, content patches and expansion releases (Bainbridge, 2009). Analysing MMO gameplay habits Ducheneaut et al. (2006a) studied more than 220,000 avatars over eight months and found *"commitment spikes"* (p.287) and troughs at various points. In particular they link the process of commitment spikes to behavioural conditioning principles found within the mechanics of the game itself. For example they found:

> *…Level 39 characters were played on average 1,032.43 minutes (N = 510, SD = 1,033.55), whereas Level 40 characters were played on average 774.62 minutes (N = 952, SD = 877.27) over the 1-week period* (Ducheneaut et al., 2006a, p.287)

In the incarnation of the World of Warcraft game at the time of their data collection (circa November 2004) getting to level 40 gave a customer large in-game bonuses. Thus as Ducheneaut et al. (2006a) found, the average customer's time committed spiked to 17.2 hours at level 39 and returned to an average 12.9 hours. Indeed in MMO games these *"..incentives and rewards are distributed to maximize player commitment"* (Ducheneaut et al., 2006a, p.293) with particular built-in milestones which mean that to attain the incentives or rewards the player must spend more time playing. Furthermore,

as an entertainment game product which is updated constantly with new content, customers experience this incentive and reward structure as a constant endless game feature. One of the main differences between a normal single player game and an MMO is that you can finish a normal computer game; an MMO is never-ending. The game designers keep up the *"commitment spikes"* (Ducheneaut et al., 2006a, p.287) by updating the game regularly with new content for the customers to beat, and new rewards and incentives, thus creating a constant flow of spikes and troughs. In an MMO game the customer will always have one more mountain to climb, one more carrot to try for (Bainbridge, 2009).

Thus, to return to Gruen's (1995) definition of Commitment being able to maintain the relationship to continue when both satisfaction and trust failed, this links well to the MMO context. Specifically, an MMO emotionally conditions the behaviour of a customer (Ducheneaut et al., 2006a) to accept the highs and lows of satisfaction, of attainment and wanting to attain. Consequently, Moorman et al.'s (1992, p. 316) emotionally rooted definition of Commitment, used by both Morgan and Hunt (1994a) in the business-to-business context and Gruen (1995) in the business-to-customer one is applicable.

Commitment is… *an enduring desire to maintain a valued relationship.*

Box 13: Operational Definition of Commitment

The focus of Moorman et al.'s (1992) definition is on an emotional component: desire. Desire (as an emotion) doesn't have to make sense, and indeed, can be illogical. Desire can ignore satisfaction and trust and be based on just its own merits. Likewise the *"value"* (Moorman et al., 1992, p. 316) of the valued relationship is perceptual and emotional with the value being self evaluated by the relationship partner.

Enduring is also a key word in the definition, an enduring commitment is an on-going one which can sustain despite challenges and setbacks. As De Wulf et al. (2001) describe, the endurance concept in combination with

desire "…*implies the presence and consistency over time of both the desire to continue a relationship and the willingness to make efforts directed at sustaining this relationship."* (p.37).

3.3.8 Trust

Commitment Trust Theory examinations of Trust in virtual communities (Wu et al., 2009, p.6) have specifically separated the benevolence aspect of trust from the concepts of confidence or expectancy in product gratification. In a study of 381 respondents in an online survey Wu et al. (2009) found clear statistical evidence of the ability to discriminate benevolence trust and product expectancy based constructs by respondents. This is reinforced by McKnight and Chervany's (2002) typology of e-commerce based Trust which clearly separates the two trusting beliefs.

In line with these findings this study interprets Trust as a multi-dimensional construct that has two key dimensions; expectancy in product satisfaction based on past experience, and Trust in service provider benevolence (Anderson and Weitz, 1992; Ganesan, 1994; Kumar et al., 1995; Ganeson and Hess, 1997; McKnight and Chervany, 2002). In consumer markets the belief that the service provider is acting in the best interests of the customer is an important perceived part of the service interaction (Ball et al., 2004; 2006). This is separate though from actual performance of the service (McKnight and Chervany, 2002).

> *Trust can be thought of as having two components, performance or credibility trust and benevolence trust* (Ball et al., 2006, p.392)

In a business-to-business relationship, and in Morgan and Hunt's (1994b) conceptualisation of Trust for partnerships, in the automobile tyre industry, both benevolence and credibility were used in the definition of Trust. As Gruen (1995) makes clear though, business-to-customer relationships are very different. An important part of Trust is risk, and the ability to mitigate the unknown with the expectancy and confidence Trust brings (Gruen, 1995, p.445). In the business-to-customer realm though, the risks are much smaller

on the part of the customer. The financial investment is smaller, the importance and dependence on the relationship is less significant, an entertainment MMO product failing may be annoying but not life-threatening, and in mass market situations the interaction with the company is very far removed (Gruen, 1995, p.451).

Benevolence Trust in a mass market is communicated by artefacts such as company generated items like warranties and societal generated conditions such as consumer protection laws. As Ball et al. (2004; 2006) explain, these artefacts of benevolence Trust are further reinforced by communication from the company, the image of concern for customers that a company either projects or manages to garner through a reputation and importantly, how it handles complaints and other critical events.

These mechanisms of reinforcement and the artefacts themselves are substantially different from how expectancy of satisfaction occurs for the customer. In gratification expectancy a customer experiences the product and the performance of the product. In an MMO this experience is on a monthly basis with a continuous series of evaluation points for the customer where they will reflect on the performance. Benevolence is a perception though, and indeed for the majority of mass market customers who have products which experience no issues at all, that perception of benevolence trust may never be tested. As such the customers' basis of evaluating the benevolence Trust they hold in a products producers is a completely different basis than their assessment of performance credibility.

Benevolence Trust is a *"critical"* (Ball et al., 2006, p.392) part of generating loyalty and commitment in the business-to-customer market. As Lindgreen (2001) found, perceptions of benevolence trust by customers is seen as a fundamental building block of customer retention. A relationship in which the customer perceives trust is one the customer holds in high esteem, with the trust *"…cementing the bond between customer and company."* (Harrison, 2003, p.209)

Thus benevolence Trust contributes towards the relationship quality which together with Commitment directly affects customer retention (Lindgreen, 2001, p.60). This study defines the Trust construct as benevolence Trust using Ganesan and Hess's (1997, p.440) designation, this definition is based on the perception of benevolent attitudes or intentions on the part of one of the partners.

Trust is… *based on the qualities, intentions, and characteristics attributed to the focal partner that demonstrate a genuine concern and care for the partner.*

Box 14: Operational Definition of Trust

The definition encompasses perceived care and concern about the on-going relationship, and in an MMO context covers all parts of the customer's view of the MMO company's benevolence towards him, the customer. As a perceptual definition taken from the customer's viewpoint, it is not a dyadic perception and may differ from actual reality. However the reality of the levels of benevolence isn't important to this study as perfect information isn't available to the customer at the re-subscription decision point; his perception is.

3.3.9 Future Intentions

Memberships have time periods for which they are active and when they need to be renewed, and it is at the renewal decision point that customers are at their most likely to sever the relationship (Ferguson and Brown, 1991). In subscription based MMO game products the membership period is generally on a monthly basis however multiples of months (two months, three months, six months) are also sold to customers with discounts for larger purchases (Alves and Roque, 2005). As Gruen (2000) relates this is a structural bond in a membership relationship *"that lengthens the time it takes to leave"* (p.460). Payment can also be rolling, in which a customer who ends their subscription period has his renewal payment automatically deducted from and his account updated, though the customer generally can interrupt this process by cancelling the account. This can mean, as found by Yee

(2006) that a number of players are *"…waiting for their subscription plans to run out. They had bought long-term subscription plans for the discount that they will not renew in the next cycle"* (p.17). Yee (2006) also found that that, given the low noticeable cost, some players simply forget to cancel their subscription, though understandably *"very few players admitted"* (p.18) this oversight.

This study's behavioural outcome is the customer's decision to either maintain or terminate the relationship with the MMO gaming product. Relationship Marketing studies usually define this cessation construct as the propensity to terminate the relationship (Brown and Peterson, 1993; Morgan and Hunt, 1994a; Gruen, 1995) and the common definition used from Brown and Peterson (1993) is adapted below.

Future Intentions is…*the intention to maintain or sever the relationship in the near future.*

Box 15: Operational Definition of Future Intentions

The Future Intentions construct is the behavioural intention of the customer to maintain or discontinue the relationship. The behavioural intention concept is commonly used in Marketing, rather than actual evidence of leaving, due to the difficulty in collecting data from customers once they have left, however it "…*has been demonstrated in the sales management literature and organizational behaviour literature to be a good predictor of actual turnover behaviour"* (Gruen, 1995, p.460). This definition also overcomes the structural problems of leaving, such as rolling payments, as it measures intention rather than an actual leaving date.

3.3.10 Summary of Construct Definitions

Game Capital is… *the accumulation of material, social, and cultural capital that customers perceive they have within a game. This is a perceptual value, not actual one, and these capitals embody the switching costs customers will incur when they are no longer be able to use, act on or enjoy the capital they have accumulated because of the dissolution of the relationship.*

Knowledge of Alternatives is…*the perceptual awareness of the customer of the replaceability of his current entertainment gaming product with another. This embodies not only an awareness of the existence of other products, but also a perception by the customer of their relative quality.*

Group Social Benefits is…*the positive perceptions of group affiliation and feelings of identification that a customer has with his in-game social grouping of fellow customers. The perception by the customer that the social grouping has a positive value that will lead to in-game achievement and/or satisfying social interactions. This may also include the perception of positive reciprocal opinions by the other group members as to the customer's value to the grouping.*

Metagame Benefits is…*the level of involvement that the customer has in the domain of the game product when not using the product. This can include the level of involvement in product related forums, networks, consumption groupings or community outputs, though importantly this can be both a passive involvement or an active involvement.*

Past Satisfaction is…*the accumulation of previous product elicited positive effect experiences that enables customers to have a confidence in their expectancy of future continued gratification.*

Shared Values with Company is… *the extent to which the customer perceives the company's behaviours, goals, and policies to be congruent with his own. A basic set of underlying assumptions perceived by the customer regarding the company's reciprocal perception of him as a customer.*

Shared Values with Game Rules is… *the extent to which the customer perceives the in-game rules as important or unimportant, appropriate or inappropriate, and right or wrong. The extent to which the customer finds the perception of those rules to be congruent with his own beliefs of right and wrong.*

In-game Customer Service Interactions is… *the perceived confidence a customer has that the customer service representatives will respond in a timely manner which will resolve his issue. The perceived confidence a customer has that if he is unsatisfied he can complain about the customer service he has received.*

Availability of in-game Information is… *the perception of the customer of the availability of product related information about both the current game and future product developments.*

Perceptions of Game Developers' Communications is…*the perception of the customer of the game developer's benevolence and responsiveness to product and customer related issues.*

Opportunistic Behaviour is…*the customer's perception of the equity and fairness of identified customer driven opportunistic behaviour actions.*

Commitment is… *an enduring desire to maintain a valued relationship.*

Current Satisfaction is…*a pleasurable level of consumption related fulfilment.*

Trust is… *based on the qualities, intentions, and characteristics attributed to the focal partner that demonstrate a genuine concern and care for the partner.*

Future Intentions is…*the intention to maintain or sever the relationship in the near future.*

Box 16: Operational Definitions of the Constructs

3.4 Summary

This study has used Churchill's (1979) approach to research design as its foundation and has emphasised from this the importance of having clearly defined construct domains. Taking on board Churchill's *"GIGO – Garbage in, Garbage out"* (Churchill, 1979, p.64) avoidance philosophy this chapter has detailed specific constructs which have been found relevant to the context. In some cases this has led to substantial alterations of the domain of the construct to uphold Churchill's (1979) recommendations of focused constructs, with specifically Trust separated into benevolence and competence based elements. The constructs presented form the basis of the nomological framework which is presented for empirical testing. From the relevant Marketing literature specific and predictive hypothesis have been formed as to the causal direction of the relationships between the constructs. These relationships are predicted, on the basis of Commitment Trust Theory, to have the constructs of Commitment and Trust at the centre of the relationship.

Chapter Four

Statement of Hypotheses

4.1 Introduction

Commitment Trust Theory empirical investigations focus on testing the relationships in a nomological framework of relevant constructs (Vatanasombut et al., 2008). The previous chapter established and defined the constructs using Churchill's (1979) structure as a research framework. This study now moves on to discuss the specific hypotheses which underpin and fulfil the first and second research questions.

Commitment Trust researchers have long understood that they should not lose sight of the overall aim of their investigations, of understanding and exploring the relationship more fully (Garson, 2009). Structural Equation Modelling in Commitment Trust Theory uses confirmatory modelling testing predictive hypotheses, with hypo-deductive methods of confirming an already postulated nomological structure used. Researchers have often gone beyond the restrictive bounds of the modelling technique though. For example, Holdford and White (1997) were interested in the on-going relationship between pharmacy students and their degree course. Implicit in that relationship are such constructs as Commitment and Trust, however Holdford and White (1997) were also interesting in *"Which demographic variables are significantly associated with trust and commitment?"* (p.252), exploring such variables as whether students had a pharmacist in their family and *"age, gender, race"* (p.252). Factors such as previous complaining

behaviour (Kau and Loh, 2006), nationality and culture (Abosag et al., 2006) and age (Hansen and Riggle, 2009) have also been examined in other studies. These more exploratory variables are in many cases investigations into the unknown by the researchers, to gather evidence to add to the understanding of the phenomenon or situation. Kau and Loh (2006) had no specific predictions for the effect of customers being previous complainants on their model, just as Holdford and White (1997) had no specific prediction as to the role of family and relatives on pharmacy students. In both these cases the researchers used the relevant factor itself as the differentiator in the sample and performed a t-test on the participants' responses to the constructs.

4.2 Statement of Confirmatory Hypotheses

From the outset Commitment Trust studies have used Structural Equation Modelling to test a series of hypotheses which predict behaviours between these constructs. These predictions are developed from the literature and logical principles, and are formally stated by the studies (Morgan and Hunt, 1994a; Vatanasombut et al., 2008). This study uses this process to underpin its examination of the first research question.

Unlike an exploratory approach, the Commitment Trust Theory approach (and Confirmatory Structural Equation Modelling approaches in general) is to present a model, present hypotheses, and then provide statistical evidence to disconfirm or not-disconfirm the model (Garson, 2009). Importantly, Structural Equation Modelling cannot confirm a nomological framework, but it can provide evidence that the data fits the framework model well. This study's framework (Chapter Two, Figure 3, p. 28) contains the 15 relevant constructs discussed in the Chapter Three, with 17 predicted paths between them (Box 17 below).

In testing the hypotheses this study follows the Alternative Models approach of Structural Equation Modelling (Garson, 2009). In this approach a series of alternative models are tested by the researcher with statistical tests of best fit

used. This study compares its Seventeen Path nomological framework to two alternative models; a Morgan and Hunt (1994a) *"rival model"* (p.27) and a model based on the statistical power of the relationships. Both this approach and the alternative models themselves are discussed in greater detail in the next chapter.

H_1: There is a positive relationship between Game Capital and Commitment

H_2: There is a negative relationship between Knowledge of Alternatives and Commitment

H_3: There is a positive relationship between Social Group Benefits and Commitment

H_4: There is a positive relationship between Metagame Benefits and Commitment

H_5: There is a positive relationship between Past Satisfaction and Commitment

H_6: There is a positive relationship between Shared Values with Company and Commitment

H_7: There is a positive relationship between Shared Values with Game Rules and Commitment

H_8: There is a positive relationship between Current Satisfaction and Commitment

H_9: There is a positive relationship between Shared Values with Game Rules and Trust

H_{10}: There is a positive relationship between Shared Values with Company and Trust

H_{11}: There is a positive relationship between In-Game Customer Service Interactions and Trust

H_{12}: There is a positive relationship between Availability of In-game Information and Trust

H_{13}: There is a positive relationship between Perceptions of Game Developers' Communications and Trust

H_{14}: There is a negative relationship between Opportunistic Behaviours and Trust

H_{15}: There is a positive relationship between Current Satisfaction and Trust

H_{16}: There is a positive relationship between Trust and Commitment

H_{17}: There is a positive relationship between Commitment and Future Intentions

Box 17: The Seventeen Confirmatory Hypotheses of this Study

4.3 Statement of Exploratory Hypotheses

This study proposes ten exploratory context relevant hypotheses (Box 18) which will be tested using t-tests. These hypotheses are neutrally phased as this study does not predict any specific outcome. They are however relevant to furthering this study's second research question of gaining a better understanding of the factors which affect the re-subscription decision constructs.

H_{18}: The mean of the responses to the constructs for the older customers will be the same as the younger customers.

H_{19}: The mean of the responses to the constructs for the males will be the same as the females.

H_{20}: The mean of the responses to the constructs for the customers who play a high number of hours will be the same as the customers who play a low number of hours.

H_{21}: The mean of the responses to the constructs for the customers who have played only one MMO will be the same as the customers who have played more than one MMO.

H_{22}: The mean of the responses to the constructs for the customers who have played a low number of MMOs will be the same as the customers who have played a high number of MMOs

H_{23}: The mean of the responses to the constructs for the customers who play one product will be the same as the customers who play a different product.

H_{24}: The mean of the responses to the constructs for the customers who have played a low amount of time will be the same as the customers who have played a large amount of time

H_{25}: The mean of the constructs of the respondents who perceived the cost of their subscription as inconsequential is the same as those who perceive it to be noticeable in their monthly expenditures.

H_{26}: The mean of the constructs of the respondents who have used "gold farming" services will be the same as those who have not.

H_{27}: The mean of the constructs of the respondents who play in groups will be the same as those who do not.

Box 18: The Ten Exploratory Hypotheses of this Study

H_{18} and H_{19} are demographic orientated hypotheses testing the effect of age and sex on the respondents' answers to the questions. Yee's (2006) studies indicate that men and women, and older and younger players may have different goals when playing games, however no examination from a customer perspective has to date identified any effect on re-subscription from these factors. This study thus proposes two exploratory hypotheses to investigate any differences in the constructs.

H_{20} tests the effect of time spent by players (in hours) playing their MMO gaming product and this is linked to H_{24} which examines the time spent playing by the MMO player in years. More time spent being entertained doesn't necessarily lead to greater satisfaction (Scitovsky, 1976). Indeed, in MMO games, as Yee (2009) discusses, the stages of *"burnout"* and *"casual"* (p.1) are seen as a part of the customer life cycle. Yee (2009) found in a survey of 1863 MMO customers that players over time moved from intense play to less intense play stages with their product. Importantly though, there was no investigation as to the effect on re-subscription from these stages. As such, this study proposes in H_{20} and H_{24} exploratory hypotheses stating that no differences will be apparent in the constructs, with any evidence of differences adding support to Yee's (2009) findings.

Four of the exploratory hypotheses ($H_{21,}$ H_{22}, H_{26}, H_{27},) relate to the measurement issue of perceptual and actual in construct measurement. The definition of the constructs led to the implementation of questionnaire items which measure the customers' perceived evaluation of that construct however, cognitive biases may impact on responses. A customer who has experienced many MMOs may perceptually see the range of available replacements in a different way than a customer who hasn't played many games. Similarly a customer who has "bought gold" may have a different outlook than a customer who hasn't. These four exploratory hypotheses thus provide an analysis of these factors in more objective terms rather than subjective, evaluative and perceptual terms.

The exploratory hypothesis examining financial costs, $H_{25,}$ sits as a distinctive environmental factor when examining switching costs. It is separate from other factors in that it has a unique attribute; if customers cannot meet the financial obligation, they can no longer maintain the relationship. This concept flows from Maslow's (1971) *"hierarchy of needs"* model in which paid for entertainment services would be subordinated to more vital requirements (food, lodgings etc.). While financial costs are a contributing factor, they also represent a dominant and over-riding issue which may affect a number of the constructs.

This study measures the financial costs to the customer in a reflective and evaluative manner, rather than using a surrogate income measure. This is done for two reasons. Firstly, the ongoing financial obligation for being a customer of an online game can be measured in both its absolute cost to the customer (i.e. £10 a month) and relative cost to income level. However, any examination of termination costs cannot ignore the principles of simple perceived value to the customer. A customer may have a very low income, yet spend around 20 or so hours, the average according to Yee (2006), using the product, and thus perceive that he is receiving good value for money, thus relative cost to income alone is not a full measure of termination costs, as that individual is weighing the loss of 20 or more hours of entertainment against the monthly fee.

Secondly, the accuracy of income measurement is also an issue when examining financial costs. Conceptually, studies examining a non-necessity such as entertainment should be asking what a respondents net disposable income (NDI) is, not total income, as total income (TI) has been found to be a poor surrogate for measurement of money the respondent has available for disbursement (Moore et al., 2000). However, studies into questionnaires asking individuals about income, both in terms of NDI and TI, (Moore et al., 2000) have shown that the ability of participants to measure their own income accurately is rather poor, with the added complexities of asking the respondents to examine their own NDI, making data quality substantially

worse. Asking complex questions, “what is your net disposable income?”, technically involves reflection, calculation and understanding of conceptually laden language by the participant and these display themselves to be particularly error prone (Moore et al., 2000). There is also the issue of sensitivity and privacy, which can further complicate matters, as privacy regarding financial income can make some respondents very uncomfortable and leads to further accuracy issues. In a study of 1,866 US citizens into private sexual practices Laumann et al. (1994, p.558) found that non-response rates due to the questions regarding financial income (10%) was as high as the intimate and personal questions regarding sexuality, *“…since for many of their respondents the income question was the most personal and sensitive question asked”* (Moore et al., 2000, p.25)

Consequently, this study argues that despite the theoretical and conceptual desire to test an accurate net disposable income figure, the customer’s own perception of the cost is instead used because conceptually it is a measure of the customer’s attitude towards the game cost. This avoids complex measurement accuracy difficulties surrounding cognitive errors, sensitivity and privacy (Moore et al., 2000, p.26).

4.4 Summary

From the relevant Marketing literature 17 specific and confirmatory hypotheses have been formed, examining the relationships between the constructs. These relationships are predicted by this study, on the basis of Commitment Trust Theory, to have the constructs of Commitment and Trust in the centre of the relationship. In Chapter Eight this study will detail how, using Structural Equation Modelling, this nomological framework has been tested against two alternative models, using statistical models of good fit to improve the understanding of the relationship.

This study has also presented ten exploratory hypotheses for which no specific predictions have been made. These are tested in Chapter Nine using t-tests with both the significance and effect size of differences highlighted.

These hypotheses add to the understanding and interpretation of the relationship (Kau and Loh, 2006; Holdford and White, 1997) and provide the evidential basis of future investigations into specific context relevant factors.

This study now moves on to the Methodology and Methods chapters. These in Chapter Five detail the design of the research that this study has undertaken to achieve the aim of this study, and test the hypotheses presented in this chapter which underpin the research questions. Chapter Six examines the construct measures, with a clear mapping given between the constructs of Chapter Three and the measures implemented. Finally, Chapter Seven discusses how this study has deployed its research instrument, an online questionnaire survey, to collect data from customers and how that data has then been analysed.

Chapter Five

Methodology and Method

Research Design

5.1 Introduction

This chapter serves as the bridge between the methodology and philosophy outlined in Chapter One and the implemented research of the subsequent chapters. This study approaches the research aim and questions from a positivist stance and has applied a structured research design approach to implement data collection and analysis methods which concentrate on rigour and validity. The influence of this research design approach upon the constructs within the nomological framework has been considered in Chapter Three, this chapter considers the over-arching influence the research design has had on the selection of appropriate methods in both the collection and analysis of data.

From the positivist Scientific Realism (Hunt, 1990) position that this study is based upon, the epistemological role of knowledge generation is to describe, observe and measure the phenomena that we experience. Consequently, following from that philosophy, the role of research is considered to be to describe the world in hypo-deductive terms, as this study has done in Chapter Four, and then implement methods to collect observations in a

rigorous way which enables them then to be measured and analysed for the production of knowledge.

5.2 Research Design

This study implemented a large scale online questionnaire survey for the collection of data. This method was selected as it fits with the positivist nature of this study's enquiry (Churchill, 1979), and due to the research aims' intention to understand the wider relationship between a business and the customer in a relationship with an MMO product. While smaller scale investigations using substitute methods (including qualitative methods) represent alternative approaches, these alternatives produce results which are difficult to generalise to the general MMO customer population. Rather than being individualistic in focus, the research aim is to understand the wider customer community. In meeting that aim it is appropriate to obtain as representative sample of the target population as possible, with the survey method generally regarded as the best method of doing so in a timely and cost effective manner (Hill et al., 1999, p. 144).

The choice of research implement was further refined through the nature of the target population, and their hard-to-access nature. As discussed in more detail in Chapter Seven, no easily accessible or obtainable sample frame exists for MMO customers due to the confidential and competitive advantage nature of that information. As such, postal surveys, telephone interviews and the like cannot be implemented in either a timely or cost effective way. The target population is an online one however (by the nature of the subject matter and product being examined) and research has established that they have extensive engagement, averaging 10 hours a week (Yee, 2006), with virtual communities through the use of message boards, websites and other forums for communication (Yee, 2006; Steinkuehler and King, 2009).

Surveys are seen to be relatively simple to administer, and are a straightforward approach to the study of attitudes, beliefs and motives. Furthermore, the technique solicits information from the sample with high amounts of data standardisation and concentration of control (Grant, 2003).

Online surveys allow for the collection of data from wide geographically distributed areas at a low cost and are seen as appropriate techniques to use when the target population itself is both online and engaged heavily in online activities (Yee, 2006). In particular, use of online questionnaires when researching large scale *"communities and groups (that) exist only in cyberspace"* (Wright, 2005, p.1) is seen as a primary reason to use these data collection tools.

This study uses the Churchill (1979, p.66) marketing research procedure for developing and defining the constructs which are then used in the analysis. Churchill's procedure is very well regarded in marketing research for its concentration on rigour, reliability and external construct validity, and its structured framework for the progression of a quantitative research project.

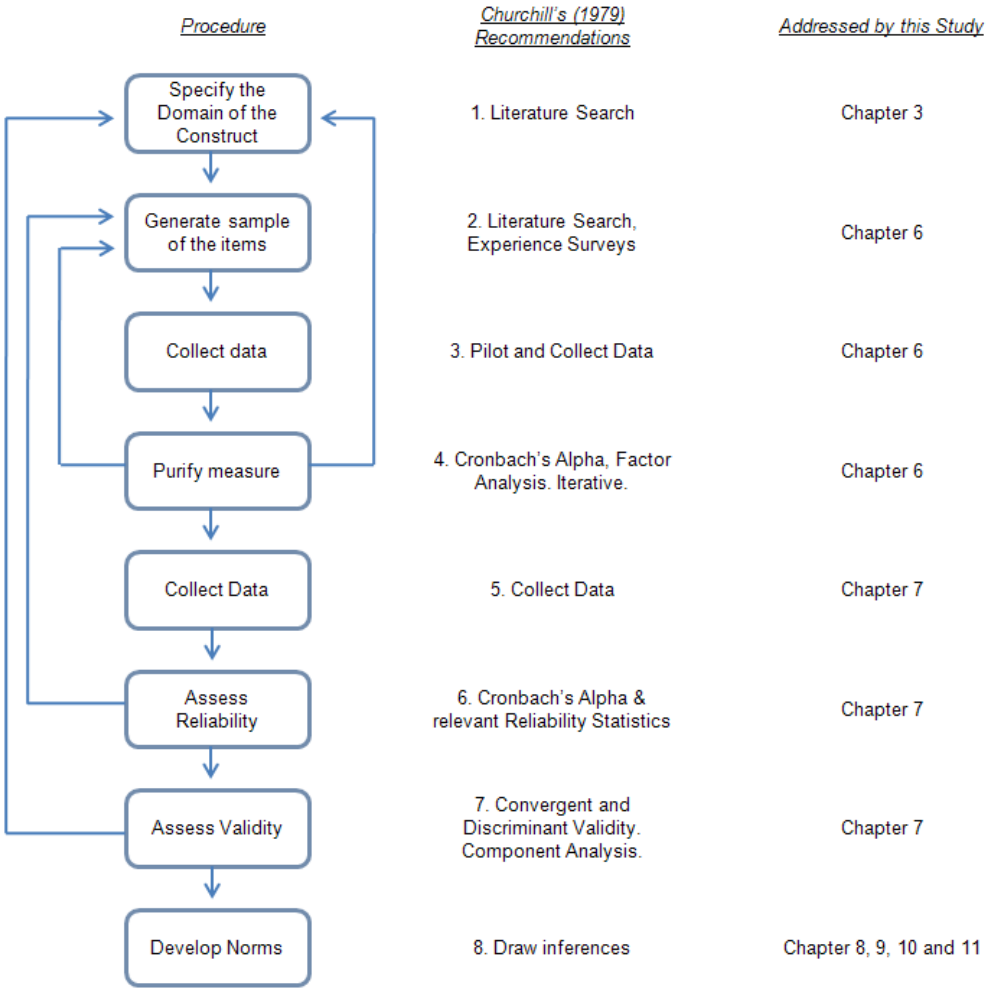

Figure 9: Research Design Framework (Churchill, 1979, p.66)

Churchill's (1979) procedure is ostensibly a survey design process (Figure 9 above). It emphasises the iterative nature of constructing good measurable constructs, of collecting data from pilot studies; both quantitative in terms of the questions asked, and qualitative in terms of asking participants how relevant they felt the questions were. Churchill also stresses the use of non-probability experience surveys *"…a judgement sample of the persons who can offer some ideas and insights into the phenomenon"* (p.67) and piloting qualitative investigative methods such as interviews and focus groups for positivist researchers so that better measures *"…which capture the domain…"* (p.67) can be specified.

Once the constructs have been firmly defined (Chapter Three) and measures of them to be implemented iteratively tested to refine them (Chapter Six), the approach then moves on to collect the data and then apply appropriate statistical techniques to assess reliability and validity. In this study Structural Equation Modelling was used to assess the confirmatory hypotheses of the first research question, and t-tests were used as the method of analysis of the exploratory hypotheses of the second research question. For both of these statistical data analysis methods Effect Size (Cohen, 1988) was included in the research design as a further layer of statistical analysis.

5.3 Inclusion of Effect Size in Research Design

The inclusion of effect size (Cohen, 1988) in the design of this research allows for measures of the magnitude of the effect of associations to be considered (Clark-Carter, 2003). Effect size is defined by Cooper and Hedges (1994) as

> *…the size of the effect of the independent variable on the dependent variable…with the significant and effect size related to each other in a simple and direct way… Test of Significance = size of effect x size of study.* (p.232)

Effect size serves as a test of strength of a statistically significant finding (Kinnear and Gray, 2009), and is a complementary addition to inferring

meaning from statistical significance (Cohen, 1988). This inclusion therefore addresses the research question by identifying important relationship marketing customer service constructs, with this study incorporating the use of Cohen's (1988) Effect Size to serve as a delineator between relevant results and important results.

Furthermore, the purpose of including effect size within this study's research design is to add rigour to the interpretation of the results, and so this addition synergises well with the Churchill (1979) overall research design which similarly emphasises rigour. While statistical significance can estimate the probability of rejecting a null hypothesis, both Type I errors (rejecting the null hypothesis when it is true) and Type II errors (rejecting the alternative hypothesis when it is true) remain an issue (Clark-Carter, 2003). Through the inclusion of effect size in the research design the possibility of misleading significance tests conducted with low statistical power can be overcome and results can be presented with the reader aware of the magnitude of the effects being discussed (Cohen, 1988).

In this study the effect size is incorporated into two areas of the statistical testing. Firstly, it is incorporated into the Structural Equation Modelling when testing the 17 confirmatory hypotheses of the nomological model. This study uses Cohen's Effect Size test statistic f^2 to determine the strength of the relationships between the model's constructs. Then effect size is used as the basis for the construction of an alternative model based on just those paths which display a greater than insignificant effect size. Secondly, Cohen's Effect Size test statistic *d* is used in the interpretation of the t-test statistics when examining the ten exploratory hypotheses as a supplement to the significance statistic (Clark-Carter, 2003, p.637). The interpretation of the Cohen's *d* and f^2 statistics (Table 6 below) is generally accepted to be either an insignificant effect or a small, medium or large effect size (Murphy and Myers, 2004; Kinnear and Gray, 2009).

Cohen's f^2	*Cohen's d*	Size of Effect
$f^2 < 0.02$	$d < 0.2$	Insignificant
$0.02 < f^2 < 0.15$	$0.2 < d < 0.5$	Small
$0.15 < f^2 < 0.35$	$0.5 < d < 0.8$	Medium
$f^2 > 0.35$	$d > 0.8$	Large

Table 6: Interpretation of Cohen's f^2 and *d* Effect Size Statistics

Since Sawyer and Ball's (1981) discussion of effect size in marketing research it has become increasingly an issue across papers published in the subject area, *"Statistical power and effect size are not considered sufficiently by marketing researchers"* (p.275). Statistical significance alone, while noteworthy, as Clark-Carter (2003, p.636) discusses, is not an indication of effect size, and significance should no longer be reported alone without a discussion of power and effect, with leading journals stating clearly in their "notes for contributors" that incorporation of effect size is a normal manuscript requirement (Kinnear and Gray, 2009). Therefore the final purpose of the inclusion of effect size in the research design is to make the statistical results of this thesis compatible and compliant with the current standards of marketing research journals and published statistical work in general.

5.4 Structural Equation Modelling

This study uses Structural Equation Modelling to test the seventeen confirmatory hypotheses presented in Chapter Four. Structural Equation Modelling is an advanced *"family"* (Kline, 2007, p.9) of inter-related statistical procedures which is classified together under a single label, with elements of path analysis, factor analysis, covariance analysis and correlation (Blunch, 2008, p.23).

Structural Equation Modelling has been used extensively in Commitment Trust Theory empirical research from the Morgan & Hunt (1994a) paper onwards and is used in most quantitative examinations of this theory. Structural Equation Modelling has two components. The structural model tests the strength and direction of relationships in theoretical constructs and

the measurement model shows the relationship between latent variables and the observed indicator (Blunch, 2008).

The *"state-of-the-art"* (Arbuckle, 2009, p.2) statistical package AMOS 17 was used in this study for the modelling. Classically, modelling software has been inaccessible due to the large difficulty of understanding the programming language of the modelling software, a particular issue in earlier versions of Jöreskog's (1979) initial LISREL program (Arbuckle, 2009). In contrast, AMOS 17 has become increasing popular amongst researchers due to its use of a WYSIWYG graphical interface which allows for specifying both the model structure and links without knowledge of a complex programming language (Garson, 2009). A primary reason for the selection of AMOS 17 is that it is a package which is seen to go *"well beyond the usual capabilities found in other structural equation modelling programs"* (Arbuckle, 2009, p.2) in that it allows for data with missing values to be incorporated in the modelling process. As the research instrument for this study is an online questionnaire in which missing data values was a plausible issue, it was deemed reasonable from the outset to use a statistical analysis package which could easily deal with this.

5.4.1 Appropriateness of Structural Equation Modelling in this Research

The goal of Structural Equation Modelling is *"to identify a model which makes theoretical sense, is a good fit to the data and is parsimonious"* (Abramson et al., 2005, p.559). This goal concurs and corresponds with the aim and objectives of this investigation of testing the model presented by Morgan and Hunt (1994a) in the online environment. As an investigation which is testing an established framework of causal assumptions, *"a priori"* (Kline, 2007 p.10), the objective of this research of confirmatory validation of the model synergizes with the confirmatory approach of Structural Equation Modelling.

Moreover, there is a harmony between the research design goals of Churchill (1979) and the Structural Equation Modelling analysis approach. Churchill's (1979) approach to good research emphasised valid and reliable constructs

and the use of Cronbach's Alpha and Factor Analysis as methods to ensure these attributes. Both of these statistical methods are incorporated in the measure selection step of the Structural Equation Modelling approach (Abramson et al., 2005) which similarly underlines the importance of measure validity and reliability.

Furthermore, another reason for the selection of Structural Equation Modelling as a technique for analysing the confirmatory hypothesis is this analysis method's ability to simultaneously test and model structures which include moderator or mediator variables (Byrne, 2001; Kline, 2007). As the Commitment Trust Framework presented in this study places the constructs of commitment and trust at the centre of relationships as key mediating variables, this analysis method synergises with the underlying theory. This allows the technique to go beyond multiple regression, which would have to model the relationships one by one rather than simultaneously, and allows the analysis to test the contribution of both the direct and indirect effects of the independent variable upon dependent variables (Abramson et al., 2005; Arbuckle, 2009)

Structural Equation Modelling was also chosen for the method of analysis due to its ability to focus on latent variables rather than just manifest ones, and its use of multiple item measures to improve measurement accuracy (Blunch, 2009). Measurement of latent variables is recognised as difficult and error-prone (Garson, 2009). As the nomological framework of Commitment Trust consists entirely of latent variables, using an analysis technique which specifically seeks to improve accuracy and reliability of the implemented measures conforms to Churchill's (1979) insistence on good and reliable constructs being implemented in research projects.

It should be noted that the reasons for the appropriateness of Structural Equation Modelling as a statistical analysis technique for examining the 17 confirmatory hypotheses also provide the foundation for the reasoning as to why the ten exploratory hypotheses cannot be tested using this method. Structural Equation Modelling is firstly a confirmatory technique rather than

an exploratory one, working from an *"a priori"* (Kline, 2007, p.10) set of established relationships, which the exploratory hypotheses do not present. Secondly, the goal of Structural Equation Modelling is the validation of a model, which the ten exploratory hypotheses do not present. Due to these two fundamental reasons the ten exploratory hypotheses were tested using the statistical inference technique of t-tests, rather than a modelling technique. T-tests are a more appropriate exploratory data analysis technique when testing a null hypothesis which is determining the effect of one factor upon a sample population (Kinnear and Gray, 2009).

5.4.2 Overview of Structural Equation Modelling's Application in this Study

This study uses Abramson et al.'s (2005) *"five steps"* (p.566) for analysing a set of data as its framework. These five steps are a formalisation of the procedures recommended by Jöreskog (1993) and Kline (2002) for approaches to Structural Equation Modelling. The five steps synergise with Churchill's (1979) approach to research design well and together form a coherent approach to assessing the 17 confirmatory hypotheses.

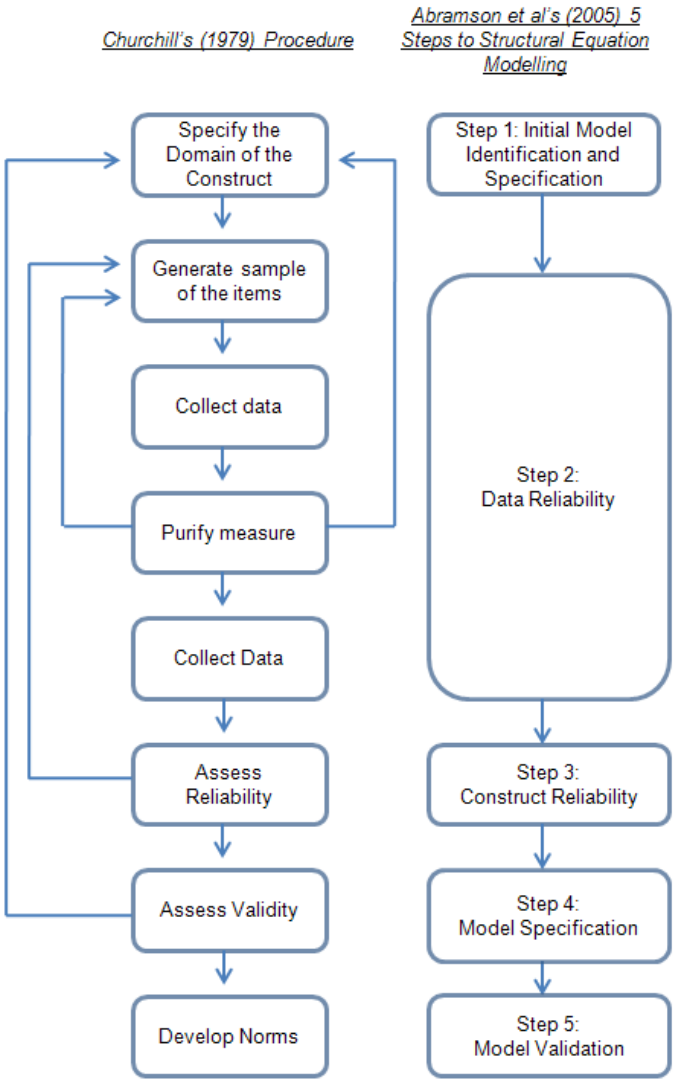

Figure 10: The Synergy between Churchill's (1979) Research Design Approach and Abramson et al.'s (2005) Five Steps

The first step shown in Figure 10 regards the initial model identification and specification. This involves mathematically or diagrammatically expressing

the hypothesised relationships between the constructs (Kline, 2006). Step 1 of Abramson et al.'s (2005) approach is represented in this study in Chapter Two which details the Commitment Trust Theory and in Chapter Three which defines and specifies the domain the constructs represent.

For exploratory work where relationships are un-evidenced the model specification of Step 1 can be an involved step (Abramson et al., 2005). However, for this research investigation, model specification and the relationships being examined are preordained by the relationships specified by Commitment Trust Theory, and as such, this research, like most strictly confirmatory research, has its framework validated by established past evidence (Kline, 2007).

The process of model identification regards the check that a unique solution is presented by the model specified, this is a particular issue for nonrecursive models (models which feedback on themselves and have no behavioural output construct) however all recursive models (those with causal outputs, of which Commitment Trust Theory is one) are considered theoretically identifiable (Kline, 2007). Blunch (2008) identifies mathematical representation as the easiest demonstration of a unique theoretical solution and in keeping with that recommendation a unique mathematical solution to the Seventeen Path Model is given below in Box 19 to validate its theoretical identifiably.

$$X_T = aX_{svc} + bX_{svg} + cX_{igcsi} + dX_{agi} + eX_{pgd} + fX_{ob} + gX_{cs} + \delta_1$$

$$X_C = hX_{gc} + iX_{koa} + jX_{gsb} + kX_{mb} + lX_{ps} + gX_{cs} + aX_{svc} + bX_{svg} + mX_t + \delta_2$$

$$X_{FI} = nX_C + \delta_3$$

Where: X_T= Trust, X_{svc}= Shared Values with Company, X_{svg}= Shared Values with Game Rules, X_{igcsi}= In-game customer service interactions, $X_{agi=}$ Availablity of Game Information, X_{pgd}= Perceptions of Game Developers, X_{ob}= Opportunistic Behaviors, X_{cs} = Current Satisfaction, X_{mb}= Metagame Benefits, X_C= Commitment, X_{gc}=Game Capital, X_{koa}=Knowledge of Alternatives, X_{gsb}= Group Social Benefits, X_{ps} = Past Satisfaction, X_{FI}= Future Intentions, $\delta_{1=}$Error of Trust, δ_2= Error of Commitment, δ_3= Error of Future Intentions, a-n= Coefficients

Box 19: Mathematical Representation of Seventeen Path Model

Step two of data reliability involves the data collection, data cleaning and data preparation approaches used to ensure that data which display both veracity and integrity (Abramson et al.'s, 2005) have been collected. This is addressed in Chapter Seven by discussions of sampling (p.141), coverage (p.143), data collection (p.145), data validation (p.146) and demographic benchmarking (p.147). This also involves tests of data integrity examining the data for possible Multicollinearity issues (p.150) which could undermine a Structural Equation Modelling Approach.

Step three of Construct Reliability involves the selection of the appropriate measures to estimate the underlying psychological constructs (Kline, 2007). The emphasis of this step is on using appropriate statistical methods to display that the measures are both reliable and valid. In keeping with Kline's (2007) recommendations construct validity is assessed in Chapter Seven though Confirmatory Factor Analysis (p.151) and construct reliability is assessed through the use of Cronbach's Alpha tests (p.152).

Once the data have been assessed as sufficiently reliable and the constructs have been examined for internal consistency and validity the next step is the modelling of the analysis and evaluation of the Model Specification. This involves the application of the *"two step rule"* (Blunch, 2008, p.159) of Structural Equation Modelling. This involves in Chapter Seven first the analysis of the constructs in a covariance matrix (p.153) to determine the significance of co-variants within the data and then the improvement and possible re-specification of the model though use of a Modification Index (p.156) which identifies ways in which the goodness of fit statistics of the model can be improved.

The final step in the application of Structural Equation Modelling is Model Validation where the model is tested in Chapter Seven against established goodness of fit statistics to determine validity (p.158) and its explanatory power (p.160).

5.4.3 Interpretation, Assumptions and Causality in Findings

The finding of this study's mathematical representation (Box 20) implies a causal interpretation, that being; (1) a unit change in X_C will result in n units of change in E(X_{FI}). This implies, if the means were available to conduct a controlled randomised experiment with X_C randomised, and the ability to set a control group X_{C1} and an experimental group X_{C2}, existed, that the observed differences (2) in E(X_{FI}) will be the same regardless of the values of X_{C1} or X_{C2}. Furthermore, this leads to the claim (3) that the entire distribution of the random variable is the same (Kline, 2007)

(1)	$X_{FI} = nX_C + \delta_3$
(2)	$E(X_{FI2}) - E(X_{FI1}) = n\ (X_{C2} - X_{C1})$
(3)	$X_{FI2} - nX_{C2} = X_{FI1} - nX_{C1}$

X_C= Commitment, X_{FI}= Future Intentions, δ_3= Error of Future Intentions, n= Coefficient

Box 20: Causal Interpretation of this Study

This investigation, like most Structural Equation Modelling in marketing, is based on non-experimental data and the conclusive output is based on two inputs (1) the data and (2) non-statistical causal assumptions (Pearl, 2009). This study's principle causal assumption is that the Commitment Trust Theory framework which implies the behaviour of the population, qualitatively and plausibly conforms to a generally accepted understanding of how the world works (Pearl, 2009, p.39). These *"mild"* (Pearl, 2010) modelling assumptions are qualitative and the modelling output is a quantitative one which gives a specific value of n in equation (1).

Consequently, any claim of a value for n from the Structural Equation Modelling made by this thesis is based on acceptance that: firstly, the relationships implied by Commitment Trust Theory are credible and rational; secondly, the constructs used by this study are acceptable to materially measure the constructs in that nomological framework; and finally, that the

research design has collected a sample of data to test from the population of MMO game customers in a way materially free of bias and error. If these three assumptions are accepted then the claim made by this study is that these assumptions, coupled with the data, logically imply the conclusion that an average change in the scoring of a customer's commitment ($\boldsymbol{X_C}$) leads to an average change in the scoring of a customer's Future Intentions ($\boldsymbol{X_{FI}}$) of ***n*** units value.

This study does not insist that its modelling assumptions are "true" (Pearl, 2010) it instead states that they are plausible. Statistical hypotheses, like those presented in the seventeen confirmatory hypotheses in Chapter Four, by definition, are testable by statistical methods. Structural Equation Models, in contrast, rest on causal assumptions which, also by the definition of assumption, cannot be given statistical tests (Pearl, 2009, p.39). The assumptions made, including the principle assumption regarding Commitment Trust Theory, are though judged by this study to be reasonable and realistic, and consistent with the academic literature presented in Chapter Two.

5.4.4 Technique of Model Analysis: Alternative Models

Jöreskog (1993) formally distinguished three clear approaches to analysing models; a strictly confirmatory approach, an approach where alternative models are considered and finally a model generating approach used for more exploratory work. These approaches are not mutually exclusive however and as Kline (2007, p.11) discusses most studies take the form of either a strictly confirmatory approach, which validates and confirms an existing model, followed by either one of the other approaches. As this research is confirmatory in nature with a pre-existing nomological framework in the form of Commitment Trust Theory, a model generating approach was rejected by this study as the aim and objectives of this investigation are not in keeping with the *"model discovery"* (Kline, 2007, p.11) nature of the goals of that approach.

Once a strictly confirmatory approach has validated a “baseline model” for comparison purposes (Jöreskog, 1993) this study then follows the alternative models approach to analysing the data. This approach was selected as it allows for the meaningful comparison of the “baseline model” in this study which includes all relevant identified pathways, with an effect size based alternative model which identifies all the important pathways. This approach is seen as central to addressing the research aim and questions outlined in Chapter One of distinguishing relevant marketing constructs in the relationship from important constructs in the relationship. A key feature of the alternative models technique is the concentration on the importance of parsimony and efficiency in the models being examined. Statistical measures of model Goodness of Fit and Explanatory power (R^2) are used (Arbuckle, 2009) to provide evidence to assist in judgements of competing models.

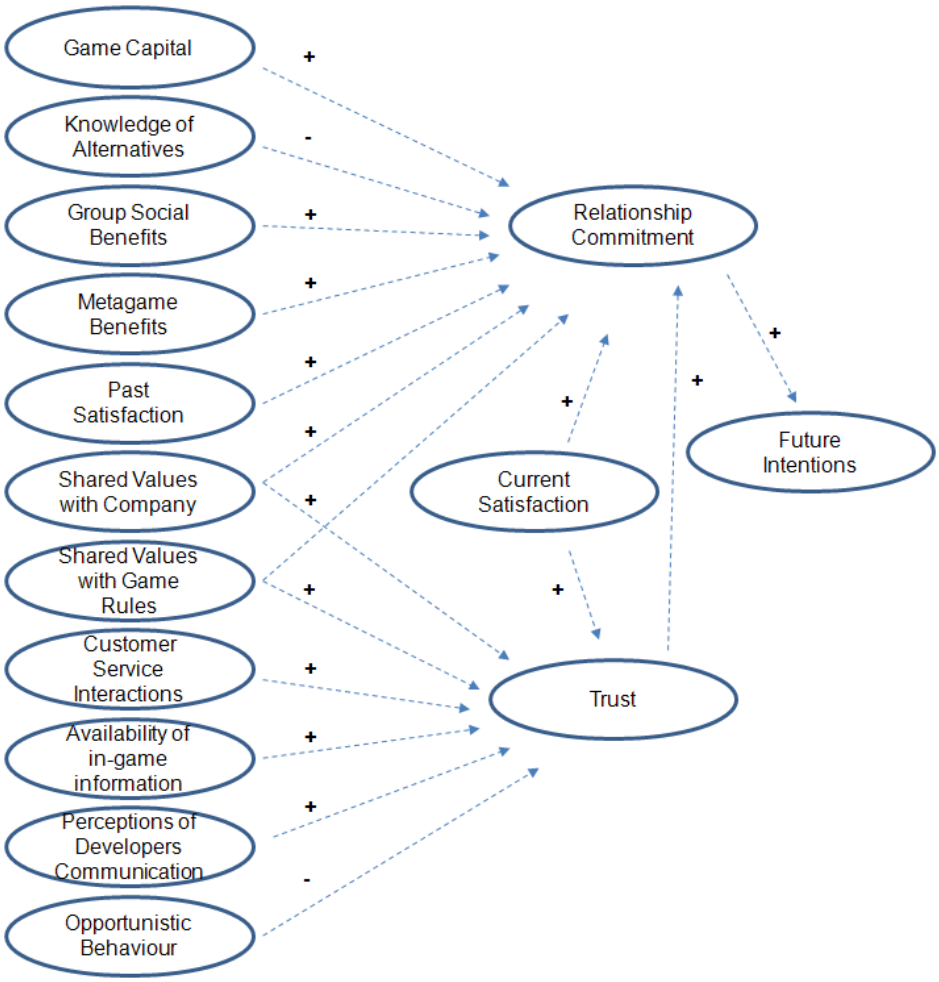

Figure 11: Seventeen Path Model

This study starts in Chapter Eight with a strictly confirmatory approach which validates the measurement model and assesses the reliability of the structural model (Arbuckle, 2009). This model is termed by this study the Seventeen Path Model (Figure 11) and serves as the "baseline model" as it includes all 17 of the expected paths between the constructs being tested. This initial strictly confirmatory approach tests all of the 17 pathway defined hypotheses specified in Chapter Four and provides the basis from which to compare the model fit statistics against alternative models presented.

This study then compares the Seventeen Path Model against a Morgan and Hunt (1994a) *"Rival Model"* (p.27) which models the constructs linearly rather than using Key Mediating Variables (Figure 12, below). The use of a *"Rival Model"* is well established in the Commitment Trust literature (Mukherjee and Nath, 2007, p.1189) and serves the purpose of justifying the placement of the psychological outcomes at the centre of the nomological framework, and tests if that placement gives better model fit than treating the psychological outcomes as just another antecedent.

This Rival Model approach also serves the purpose of justifying a structural equation modelling approach (Mukherjee and Nath, 2007). If a linear additive "Rival Model" was found to generate equal or better model fit statistics this would suggest that a simpler linear regression approach would suffice in testing the construct relationships. As such, a key statistic used in Commitment Trust Theory empirical research when comparing the key mediating variable "baseline model" with the linear additive "Rival Model" is the explanatory power of each approach.

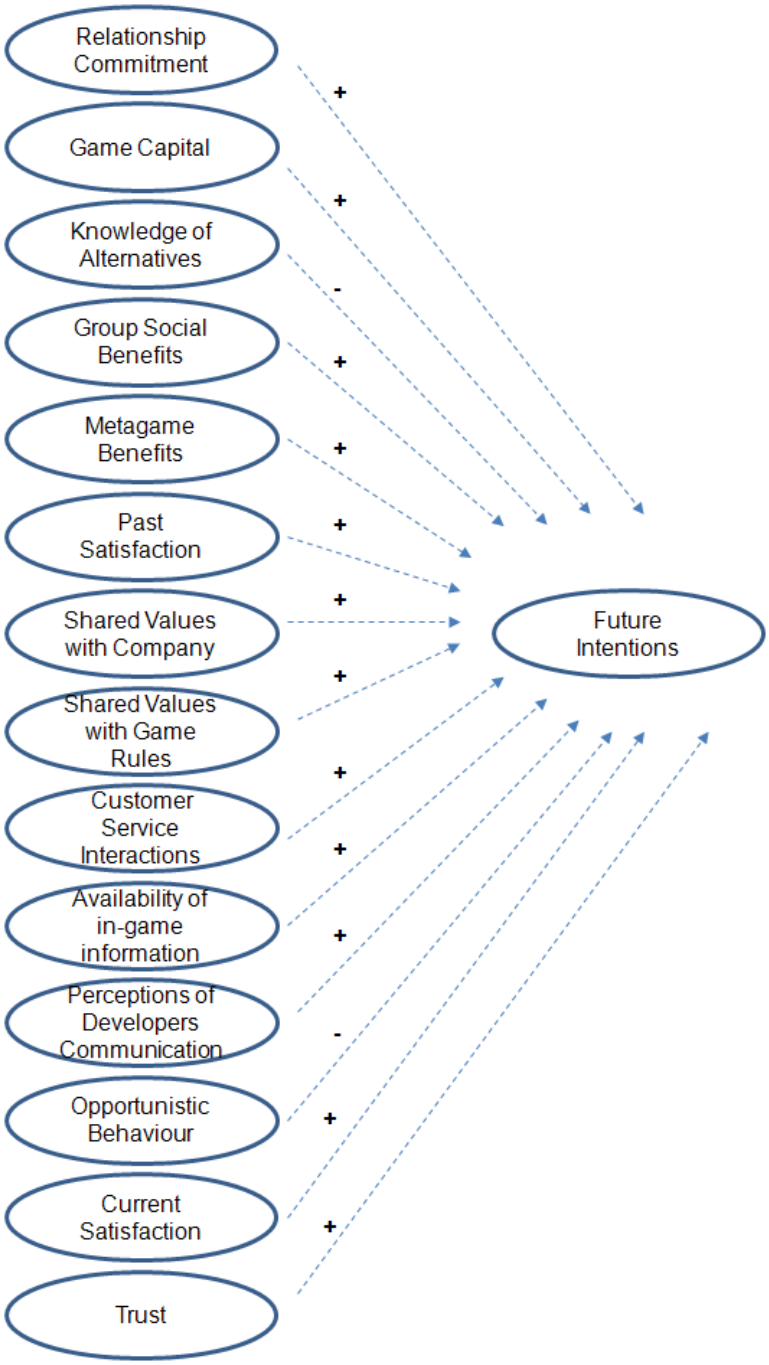

Figure 12: A Morgan and Hunt (1994a) Linear Additive "Rival model"

This study then compares the model fit of the Seventeen Path nomological framework to a framework which just includes those pathways which display effect size (Cohen, 1988). Both Kaplan (1995) and Chin (1998) argue that effect size should be considered as a *"routine part of establishing the statistical validity"* (Kaplan, 1995, p.117). However it is still regarded as a *"critical"* yet *"neglected"* (Chin, 1998, p. xi) part of modelling. Effect Size has

become a central issue in empirical studies with it increasingly being considered that *"...statistical significance, on its own, is inadequate as a way of deciding the worth of a piece of research and suggests how we can use a combination of types of evidence to come to our decisions"* (Clark-Carter, 2003, p.636).

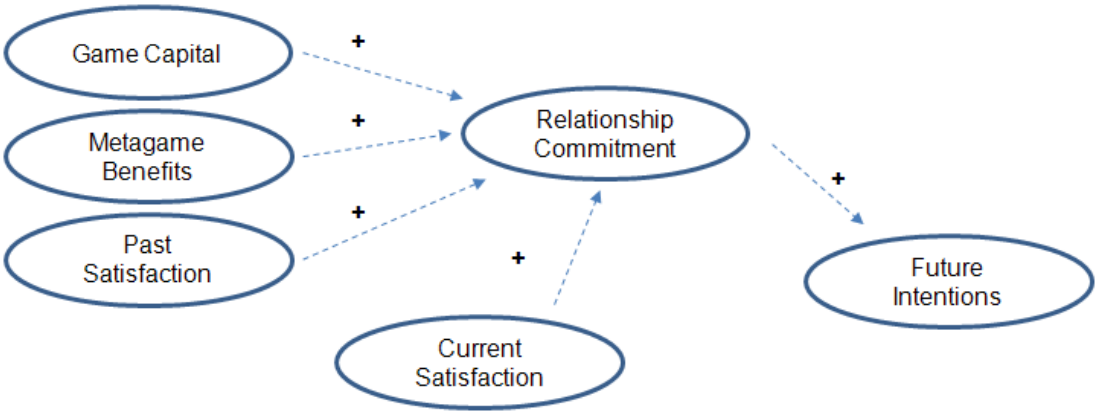

Figure 13: Five Path Model

Consequently, this study, based on Chin's (1998, p. xi) advice on modelling, and the weight of evidence on the importance of incorporating effect size (Sawyer and Ball, 1981; Cohen, 1988; Clark-Carter, 2003) in Chapter Eight presents a third model for comparison purposes. This model, shown above (Figure 13), is based just on those paths which have been found to be both statistically significant and have a non-insignificant effect size as measured by Cohen's f^2 value in Chapter Eight.

5.5 T-tests

Independent Sample t-tests were selected as the statistical analysis method to analyse the ten exploratory hypotheses presented in Chapter Three. This method was conducted using SPSS 16, which is seen as a widely used and powerful analysis tool (Kinnear and Gray, 2009). The Independent Sample t-test's method is conducted to determine if a difference between two groups is larger than what would be expected by random error alone (Mitchell and Jolley, 2007, p.309). It is an appropriate inferential statistical method to test exploratory deductive hypotheses which present a null hypothesis presenting no change in the mean due to the presence of a variable and an alternative

hypothesis which presents the simple alternative that a statistically significant mean change in the variable occurs. Furthermore, it is appropriate when there is an independent grouping variable (i.e. gender) to assign the groups randomly (Garson, 2009).

This study meets the three assumptions of conducting the Independent Sample t-test; the observations are independently assigned to the groupings, the data uses summated Likert scales which can be treated as an interval scale (Mitchell and Jolley, 2007, p.225), the sample populations are much greater than 30 and so the central limit theorem states that a normal distribution will occur. A fourth assumption, regarding both sample groupings requiring equal variances, also called the Behrens-Fisher problem (Kinnear and Gray, 2009, p.179), was overcome through using SPSS 16. In particular SPSS 16 was chosen as an appropriate statistical package to run t-tests on because it automatically calculates both the Levene Equality of Variance Test (test of homoscedasticity) and the separate-variance T-statistic which allows for a T-statistic to be produced even when the variances of the populations are different (Kinnear and Gray, 2009, p.179).

5.6 Summary

This chapter has detailed how the starting methodological and philosophical positions of this thesis have led to the selection of an objectively orientated research design which focuses on rigour, validity and reliability. This chapter has shown how the construct focus of the research design of Churchill (1979) harmoniously fits with a nomological-based conceptual framework. Moreover, this chapter has given the reasons for the selection of the research instrument, the online survey, and in addition, three key reasons for the inclusion of effect size, which enhances Churchill's (1979) focus on rigour, have been detailed.

Finally, the principle methods selected for the analysis of the hypotheses outlined in Chapter Three which underpin the research aim are outlined. Structural Equation Modelling allows for the simultaneous analysis of the interactions between constructs in a confirmatory nomological network, and

the method synergises with the conceptual framework, the construct based research design approach and the positivist paradigm stance this research has adopted. Independent Sample t-tests are an appropriate method for testing exploratory deductive hypotheses which have an interval dependent variable and a dichotomous independent grouping variable, and the aim is to test the difference of means for statistically significant differences between the groupings.

With the research design detailed, this thesis now moves on in Chapter Six to consider the construct correspondence rules which allow for the measurement of the constructs presented in Chapter Three. These rules are underpinned by the questionnaire focused research design approach of Churchill (1979) discussed in this chapter.

Chapter Six

Methodology and Method

Construct Correspondence Rules, Pilots, Measurement and Ethics

6.1 Introduction

This chapter details the correspondence rules which allow the constructs defined in Chapter Three to be measured, and the operationalisation of these construct measures into the research instrument. Within this study, many of the research latent constructs tested were adapted, when possible, from previous Commitment Trust Theory studies, usually with just minor modifications for the context. This is following the recommendations of Straub et al. (2004) that in positivist research using pre-validated instruments relating to the constructs being examined is highly recommended and desirable.

6.2 Research Instrument Measures

The quantitative survey of this study was preceded by a review of the literature and two qualitative pieces of fieldwork. This led to a pilot survey questionnaire being conducted to gather feedback and allow for refinement of the finally deployed online survey questionnaire. This approach was modelled on and reflects previous practice in Commitment Trust Theory

research, and forms the basis of Churchill's (1979) marketing research framework. It is described as conducting *"exploratory fieldwork"* in a number of Commitment Trust Theory papers (MacMillan et al., 2005, p.810) and constitutes a pilot testing approach for the development of quantitative survey items for validity and reliability, which is seen as a traditional underpinning in quantitative studies (Straub et al., 2004).

6.2.1 Exploratory Fieldwork

The first of the qualitative investigations of this research was a case study comprising three convergent elements; a pen and paper questionnaire survey of 162 final year university students, a netnographic approach using forum responses from 31 online gamers on a popular video games forum and field notes from contact with a World of Warcraft guild. This investigation was subsequently published as Grundy (2008a) in the journal *Games and Culture* and is included in Appendix A with the permission of the editors.

This initial qualitative investigation identified issues of possible stigma, perceived threat and *"privacy invasion"* (Evans, 2003, p.665) as reasons for nonparticipation in online gaming research containing questions concerning opportunistic behaviours such as the buying of in-game currency or characters. In particular this fieldwork emphasised the advantages of quantitative methods of inquiry in which respondents have a high degree of privacy because of their ability to remain anonymous. Additionally, the analysis identified the importance of communicating research ethics to the participants, in identifying clearly what the researcher's credentials were and the ethical guidelines that the researcher was working under. This led to the researcher's credentials being very explicitly outlined in the finalised research instrument (Appendix C).

This study also formed the basis for a consideration of the nature of reactance (and its possible impact on results) in asking questions regarding opportunistic behaviours in MMO games, with in particular issues such as the phrasing of the question and the setting in which it was asked both being seen as a concern. It was first found that a stark difference occurred between

what contributors were willing to say in an open channel (online internet forums) rather than a private communication channel (contributions sent via private e-mail). In addition it was found that those who used the open channel used language and statements which were sometimes inappropriate for a research setting and created a difficult research atmosphere for differing or contradictory views to be expressed. These open channels also created independent response and research setting issues in that the tenth respondent, for example, could read all the previous nine responses before posting. The implication from the finding of this first preliminary investigation was that quantitative methods of inquiry which allow for privacy in the channels of answering are preferable to participants who may otherwise have a nonparticipation bias. It was also found that a private channel may be preferable to avoid an inappropriate, confused or confrontational research setting. This finding lent weight and evidence to the appropriateness of the online questionnaire as the chosen research instrument, as it allows for an avoidance of those issues.

The second of the qualitative investigations regarded more directly the elements of confidence and trust and applied a netnographic (Kozinets, 1998) approach to gather eight participants' views on these elements in the context of an environment containing elements of opportunistic behaviours. This investigation was subsequently published as Grundy (2008b) and is included in Appendix B with the permission of the journal's editors. This research led to further refinement of the questionnaire items, particularly those regarding social group benefits, metagame benefits, opportunistic behaviours and trust.

6.2.2 Piloting and Pre-Testing

From these qualitative elements and the review of the literature, a draft questionnaire was constructed using SurveyMonkey, an online survey instrument, and then pre-tested on a pool of 26 preselected non random participants who had indicated a willingness to participate. Respondents were encouraged to identify unclear items (in particular any terminology

issues), comment on the importance of the research issues, and suggest changes. Most importantly for completion rates, in iterative cycles of feedback, the average time taken to complete the survey was reduced from an initial half an hour (or more in some cases) to an average of 15 minutes in keeping with the recommendations of online survey research design (Andrews et al., 2003, p.197)

Four cycles of iterative questionnaire evolution were completed in total, with feedback received through a mixture of communication methods that the participants felt comfortable with (a mixture of e-mail correspondence and online forum usage). On the third and fourth cycle of evolution non-statistically valid (due to both sample size and bias) data analysis using Cronbach's Alpha was undertaken to give an indication of the reliability of the Likert scales to measure the latent constructs. This led to further refinement of the research instrument and measures.

6.3 Measures Implemented

The measures which were implemented in the survey instrument (Appendix C) represent the findings of the preliminary investigations phase of the research and the results of the extensive pilot testing in accordance with Straub et al.'s (2004) recommendations. The antecedent and key mediating variable measures themselves use reflective seven point Likert scales (anchored with: Strongly Disagree/Strongly Agree) and the Future Intentions construct uses a formative seven point Likert scale (anchored with: Highly Unlikely/Highly Likely).

These measures were tested for reliability and robustness in the piloting stages however due to the small sample size and the nature of the biased sample the statistical results were merely an iterative process of improving the research instrument. This led to a number of measures being implemented in the survey instrument which were found at the pilot stage to give an indication of reliability to measure the construct and when later in the analysis were found not to be sufficiently robust. The elimination of measures which did not display sufficient reliability and robustness when examined in

the analysis stages of this study using Cronbach's Alpha and Confirmatory Factor Analysis is discussed further in Chapter Seven. The measures discussed in this section represent the measures which have been found to be statistically valid (with both convergent and discriminant validity) and robust.

In accordance with Boudreau et al. (2001) and Straub et al.'s (2004) recommendations regarding the use of pre-validated measurement instruments, a rigorous mapping process was undertaken to detail the relationship between each latent construct, the originating study and the operationalised research question posed. In summary at the end of this section (Tables 7 to 15, p.131-138) this detailed mapping is shown along with Cronbach's Alpha for each measure.

6.3.1 Measures of Relationship Termination Costs

Previous Commitment Trust Theory empirical studies examining business to customer relationships in online environments in Li et al. (2006, p.40) and Vatanasombut et al. (2008, p.427) have concentrated solely on customer switching costs and the evaluation of customers of the alternatives on offer. Similarly in this study these two latent constructs, the switching costs (termed Game Capital) and the knowledge and attractiveness of alternatives, are the focus of the measures in the research instrument (Table 7, p.131).

Knowledge of Alternatives was measured by two scale items adapted for an online gaming context from Li et al.'s (2006, p.40) measures examining alternative attractiveness in a business-to-customer online setting. A third scale item regarding needs fulfilment and the evaluation element of the Knowledge of Alternatives construct was adapted from Vatanasombut et al.'s (2008, p.427) measures examining those concepts in online banking. Lastly, respondents self identifying as being knowledgeable or having expertise of that type of product is a strong indication of a wide and deep knowledge base (Bell et al., 2005). Consequently, a fourth scale item measuring self identified expertise was adapted from Bell et al.'s (2005, p.176) measures of customer self identified expertise, in a related context of examining the

effects of switching costs and customer expertise on customer loyalty decisions (p.172)

Due to the nature of switching costs being specific to both the context and relationship, no easily adaptable measures for an online MMORPG gaming context were found which related to the switching cost construct. Consequentially, Malaby's (2006) MMO-specific concepts of Game Capital *"material, social, and cultural."* (p.141) were operationalised in this research to cover the areas of achievement and credentials, as well as social aspects such as friends and community. Feedback from the participants of the pilot indicated a few minor wording changes on the five resultant scale items which were incorporated into the final research instrument.

6.3.2 Measures of Relationship Benefits

The measures of the metagame benefits (Table 8, p.132) that the customer receives are directly adapted from the concepts of Domain Involvement presented in Gwinner and Swanson (2003, p.284). These metagame benefits are the benefits of identification by the customer with the game and the personal relevance they then derive from this. The measures of this in Gwinner and Swanson (2003) concerned the amount of time sports fans thought about, read about or were otherwise spending their time concerned with their sport. These measures from the sports fan context were adapted for online gaming context with minor word modifications.

The measures of Social Group Benefits were likewise adapted from the sports fan context in Pritchard et al. (2007, p.175). These measures were adapted from measures of camaraderie (group affinity and identification) and performance evaluation (reflections on achievement) with wording changes for an online context.

The measures of past satisfaction are adapted from Bloemer and Odekerken-Schroder's (2002) measures for examining product elicited positive affect in customer loyalty decisions in a supermarket context. Evidenced past satisfaction with a product or service is a direct function of

positive affect with that service or product as both Mano and Oliver (1993) and Evrard and Aurier (1994) explain. Furthermore, with entertainment products, as Evrard and Aurier (1994) discuss in the context of movies, this linkage is both implicit and clearly defined by literature.

6.3.3 Measures of Shared Values

The measures of the customers' shared values with the games company (Table 9, p.133) were adapted from Vatanasombut et al. (2008, p.427) with only minor wording changes. These measures in Vatanasombut et al. (2008) were themselves highly derivative of the original Morgan and Hunt (1994a, p.35) measures.

The shared values of the customer with the games rules measures were much more contextual to the situation and were more derived from the underlying concepts behind the shared values questions expressed in MacMillan et al. (2005, p.813) and Vatanasombut et al. (2008, p.427), both of which are derived mainly from Morgan & Hunt (1994a, p.35). These measures were informed by both the initial literature review and the feedback from the participants of the preliminary pilot stages whose advice and feedback, in an iterative process, helped focus the question on the MMO context.

6.3.4 Measures of Communication

The measures of communication (Table 10, p.134) were informed by the measures utilised by two studies by Mukherjee and Nath (2003, p.10; 2007, p.1185) in examining the communication between an internet-based retailer and customers and the communication between online banking services and the customers who use this facility. Furthermore, the customer service interactions measure was further informed by Vatanasombut et al. (2008, p.427) who examined the communication construct in the online banking services.

The availability of game information measures were adapted, with minor wording changes for the context from Mukherjee and Nath (2007, p.1185).

Importantly, these measures do not differentiate between how customers find out about the game information or developments (i.e. company controlled or third party) just the end result; that being that they find it easy to find information and feel informed. Thus the customer perception of being informed, not the source location or views on the level of communication, is the reflective measure. In keeping with the construct definition outlined in Chapter Three therefore the measures are not concerned with the actual level of game available information (which may be very different), but instead the customers' perceptions of this information, which conceptually add to their levels of commitment.

For the customer service interactions the customer may personally experience communication measures examining the timeliness, quality and ability to feedback in a customer service interaction. These were adapted from both Mukherjee and Nath (2003, p.10) and Vatanasombut et al. (2008, p.427) with minor wording changes to adapt for the context.

The measures of perceptions of the game developers' communications were adapted with minor word modifications from communication and quality of response measures in Mukherjee and Nath (2007, p.1185). Negative phrasing was used in the measures due to the feedback from the pilot study participants that the positive phrasing did not sufficiently emphasise, structurally, a change in the focus of the questions (perceptions of developers') from the previous focus (customer service representatives). The measures were also negatively phrased to emphasise the perceptual nature of the measure to the participant in addition to this change in focus.

6.3.5 Measures of Opportunistic Behaviours

As the opportunistic behaviours present in the MMORPG customer and product relationship situation are unique, specific measures employed in previous and related commitment studies to examine opportunistic behaviours did not fully cover the scope of the activities. During the piloting stages of the questionnaire both general opportunistic behaviour scale items

based on previous studies, and context specific measures (Table 11, p.135) derived from the work of Heeks (2008) were shown to participants.

Feedback from the MMO gamers in the pilot stage in particular indicated that the generalist measures were not clearly or readily understood, while the derived context specific measures were clearer to them and used a language which they found unambiguous. Furthermore, a neutral phrasing, “I have no issues with”, was used in the scale items due to feedback from the pilot participants that positively and negatively phrased scale items were lacking in clarity, with the neutrally phrased items seen by pilot participants to provoke a greater deal of reflection on the part of the respondent.

6.3.6 Measures of Trust

In keeping with previous research in this area, the six item scales for measuring Trust (Table 12, p.136) were derived from the original Morgan & Hunt (1994a, p.35) scales. These scales were previously adopted in empirical studies in online environments in both Mukherjee and Nath (2007, p.1185) for online retailing and Vatanasombut et al. (2008, p.427) for online banking. Only very minor wording changes (the addition of the word games company, instead of company, to contextualise) were made. Feedback from the pilot stages of the research indicated that the measures were easily understood by participants, relevant to their situation, and the focus of the questions was clear.

6.3.7 Measures of Commitment

The five scale items which measure Commitment (Table 13, p.137) were derived, with very minor wording changes, from the original Morgan & Hunt (1994a, p.35) scales. These scales were previously adopted in Commitment Trust Theory empirical studies, in online environments in Vatanasombut et al. (2008, p.427) and by MacMillian et al. (2005, p.427) in not for profit organisational research, and in pharmacy students in Holdford and White (1997, p.256).

6.3.8 Measures of Current Satisfaction

The four scale items examining the Current Satisfaction (Table 14, p.138) of a customer were adapted from the Satisfaction measures in Li et al.'s (2006, p.140) empirical Commitment Trust Theory study into internet website loyalty with very minor wording changes. Conceptually, as with the past satisfaction measures, these measures are examining product elicited positive affect (feelings of happiness, fun, relaxation), however while the past satisfaction questions are specifically concerning the past (i.e the item is phrased "was"), or the expectations built up ("I expect"), the Current Satisfaction questions are in the present tense (i.e. "is fun").

6.3.9 Measures of Future Intentions

The Behavioural Outcome measure, the future intention to re-subscribe, (Table 15, p.138) uses a formative scale with increasing time periods. This scale is directly adapted from the original Morgan and Hunt (1994a, p.35) propensity to leave measures, and identical scales have since been used by both Vatanasombut et al. (2008, p.427) and Mukherjee and Nath (2007, p.1185) in online environments to measure behavioural intentions to continue the relationship.

Morgan and Hunt (1994a) Construct	Construct	Cronbach's Alpha	Source/Adapted From	Item Measures	Scale type	Mean	Item Loading
Relationship Termination Costs	Game Capital	0.763	Adapted from Malaby (2006) analysis of the components of in-game capital	"I've completed a great deal of the game's content"	Reflective	5.19	0.622
				"I've many friends in-game"	Reflective	5.03	0.576
				"I've achieved things in this game."	Reflective	5.94	0.602
				"I've some great memories from playing this game."	Reflective	6.19	0.564
				"I'm part of the community of my game"	Reflective	5.15	0.598
	Knowledge of Alternatives	0.711	Adapted from "Quality of Alternatives" measures in Li et al. (2006, p.140)	"I keep up to date with upcoming MMO games."	Reflective	4.59	0.866
			Adapted from "Relationship Termination Costs" question in Vatanasombut et al. (2008, p.427)	"My needs could easily be fulfilled by an alternative MMO game."	Reflective	3.65	0.533
			Adapted from "Quality of Alternatives" measures in Li et al. (2006, p.140)	"I've read many reviews of other MMO games."	Reflective	4.7	0.845
			Adapted from "Customer Expertise and Switching Cost" measures in Bell et al. (2005, p.176)	"I'm an MMO gamer"	Reflective	5.64	0.534

Table 7: Relationship Termination Costs Construct Mapping

Morgan and Hunt (1994a) Construct	Construct	Cronbach's Alpha	Source/Adapted From	Item Measures	Scale type	Mean	Item Loading
Relationship Benefits	Metagame Benefits	0.754	Adapted from "Domain Involvement" in Gwinner and Swanson (2003, p.284)	*"I regularly spend time reading about the game (news/upcoming content etc) outside of the game."*	Reflective	5.84	0.769
				"I think about playing the game regularly when I'm not playing."	Reflective	4.94	0.718
				"I visit game community websites"	Formative	5.77	0.792
	Group Social Benefits	0.857	Adapted from Social dimensions of Camaraderie and Performance evaluation in Pritchard et al (2007, p.175)	*"I'm an active part of my group"*	Reflective	5.82	0.813
				"I'm a good member of my group"	Reflective	6.07	0.803
				"I can achieve things with my group"	Reflective	6.05	0.733
				"I've a responsibility towards my fellow group members"	Reflective	5.85	0.78
				"Some of the other players in my group are people I enjoy socialising with"	Reflective	5.98	0.638
	Past Satisfaction	0.857	Adapted from Past Satisfaction and Happiness (Termed "Product elicited positive affect" in paper) in Bloemer and Odekerken-Schroder (2002, p.74)	*"I expect this game to make me happy over the next subscription period"*	Reflective	5.38	0.716
				"I expect that this game shall continue to leave me satisfied"	Reflective	5.21	0.674
				"I was happy with the game when I last renewed my subscription."	Reflective	5.85	0.81
				"I was happy with the game last month."	Reflective	5.69	0.803

Table 8: Relationship Benefits Construct Mapping

Morgan and Hunt (1994a) Construct	Construct	Cronbach's Alpha	Source/Adapted From	Item Measures	Scale type	Mean	Item Loading
Shared Values	Shared Values with Company	0.885	Adapted from "Shared Values" question in Vatanasombut et al. (2008, p.427)	*"I've confidence that the games company will keep the games quality to the levels I am used to"*	Reflective	5.43	0.649
				"The games company understands my needs as a gamer"	Reflective	5.11	0.801
				"The games company understands my expectations from the game"	Reflective	5.13	0.807
				"The games company understands my concerns about the game"	Reflective	4.67	0.757
	Shared Values with Rules	0.78	Adapted from "Shared Values" question in Vatanasombut et al. (2008, p.427)	*"In general terms, I understand what sorts of activities could get me banned in-game."*	Reflective	6.32	0.547
			Adapted from "Shared Values" question in MacMillian et al. (2005, p.813)	*"I agree that the things which could get me banned in-game are wrong."*	Reflective	5.65	0.641
			Adapted from "Shared Values" question in MacMillian et al. (2005, p.813)	*"In general terms, I feel that I know what would break the End User Licence Agreement (EULA) and Terms of Service (TOS)."*	Reflective	5.75	0.731
			Adapted from "Shared Values" question in MacMillian et al. (2005, p.813)	*"The End User Licence Agreement (EULA) and Terms of Service (TOS) are things which I generally expect from a game."*	Reflective	5.78	0.774
			Adapted from "Shared Values" question in MacMillian et al. (2005, p.813)	*"In broad terms, I generally agree that activities which break the End User Licence Agreement (EULA) and Terms of Service (TOS) are wrong."*	Reflective	5.49	0.798

Table 9: Shared Values Construct Mapping

Morgan and Hunt (1994a) Construct	Construct	Cronbach's Alpha	Source	Item Measures	Scale type	Mean	Item Loading
Communication	Availability of game information	0.699	Adapted from "Communication" question in Mukherjee and Nath (2007, p.1185)	*"I find it easy to find out information about this game."*	Reflective	6.21	0.753
				"I feel informed about the latest developments in the game."	Reflective	5.94	0.713
	In-game customer service interactions	0.754	Adapted from "Communication" measure in Mukherjee and Nath (2003, p.10) and "Communication" measures in Vatanasombut et al. (2008, p.427)	*"The response of GM's in-game to problems I may have encountered is usually timely."*	Reflective	4.56	0.809
				"I'm confident that if I have a problem in-game a GM can usually help me."	Reflective	4.98	0.819
				"If I have an in-game GM encounter which I am unhappy about, I feel able to complain about it."	Reflective	4.77	0.718
	Perceptions of Game Developers' Communication	0.716	Adapted from "Communication: Quality of Response" question in Mukherjee and Nath (2007, p.1185)	*"The game developers ignore the feedback of the community." (Reversed Scale)*	Reflective	4.86	0.53
				"The developers treat the community with contempt" (Reversed Scale)	Reflective	5.3	0.524

Table 10: Communications Construct Mapping

Morgan and Hunt (1994a) Construct	Construct	Cronbach's Alpha	Source/Adapted From	Item Measures	Scale type	Mean	Item Loading
Opportunistic Behaviors	Opportunistic Behaviors	0.925	Adapted from Heeks's (2008) analysis of the main avenues of "gold buying"	*"I've no issues with people buying in-game currency from 3rd parties."*	Reflective	2.64	0.891
				"I've no issues with the use of power-leveling services"	Reflective	2.43	0.905
				"I've no issues with people buying in-game items from 'gold-sellers' "	Reflective	2.42	0.92
				"Buying an account is something I have no issues with."	Reflective	3.14	0.74
				"I have no issues with the "Escort Services" that "gold-sellers" provide."	Reflective	2.57	0.909

Table 11: Opportunistic Behaviours Construct Mapping

Morgan and Hunt (1994a) Construct	Construct	Cronbach's Alpha	Source/Adapted From	Item Measures	Scale type	Mean	Item Loading
			Adapted from "Trust" question in Morgan & Hunt (1994a, p.35)	*"The games company has high levels of integrity and I trust them to not do things I'd consider to be wrong."*	Reflective	5.08	0.722
			Adapted from "Trust" question in Mukherjee and Nath (2007, p.1185)	*"The games company is an honest company who I trust with my personal details on my account management page."*	Reflective	5.84	0.682
			Adapted from "Trust" questions in Vatanasombut et al. (2008, p.427)	*"The games company make me feel that my custom is important."*	Reflective	4.61	0.612
Trust	***Trust***	***0.85***	Adapted from "Trust" questions in Vatanasombut et al. (2008, p.427)	*"I'm confident that the games company is always looking to improve data security."*	Reflective	5.37	0.686
			Adapted from "Trust" questions in Vatanasombut et al. (2008, p.427)	*"The games company's brandname means I can trust in the quality of this game."*	Reflective	5.66	0.808
			Adapted from "Trust" questions in Vatanasombut et al. (2008, p.427)	*"The games company upholds the principles of a well-respected video games company."*	Reflective	5.78	0.846

Table 12: Trust Construct Mapping

Morgan and Hunt (1994a) Construct	Construct	Cronbach's Alpha	Source/Adapted From	Item Measures	Scale type	Mean	Item Loading
			Adapted from "Relationship Commitment" question in Morgan & Hunt (1994, p.35)	*"This MMO game is something I'm very committed to."*	Reflective	5.32	0.729
			Adapted from "Commitment" question in MacMillian et al. (2005, p.813)	*"This MMO game is something I intend to maintain a subscription of for the forseeable future."*	Reflective	5.47	0.593
Commitment	***Commitment***	***0.872***	Adapted from "Commitment" question in Holdford and White (1997, p.256)	*"This MMO game deserves the commitment of its players."*	Reflective	5.35	0.527
			Adapted from "Commitment" question in Vatanasombut et al. (2008, p.427)	*"The MMO gaming experience from my game is important to me."*	Reflective	5.54	0.763
			Adapted from "Commitment" question in Vatanasombut et al. (2008, p.427)	*"My MMO game is something I really care about."*	Reflective	5.2	0.813

Table 13: Commitment Construct Mapping

Morgan and Hunt (1994a) Construct	Construct	Cronbach's Alpha	Source/Adapted From	Item Measures	Scale type	Mean	Item Loading
N/A	Current Satisfaction	0.849	Adapted from "Satisfaction" question in Li et al. (2006, p.140)	*"My MMO game makes me happy."*	Reflective	5.49	0.704
				"My MMO game does a satisfactory job of fulfilling my needs."	Reflective	5.36	0.68
				"Playing my MMO game is fun."	Reflective	5.88	0.8
				"I find my MMO game a great way to relax."	Reflective	5.76	0.745

Table 14: Current Satisfaction Construct Mapping

Morgan and Hunt (1994a) Construct	Construct	Cronbach's Alpha	Source/Adapted From	Item Measures	Scale type	Mean	Item Loading
Outcome	Future Intentions	0.972	Adapted from "propensity to leave" Formative Scale questions in Morgan & Hunt (1994a, p.35)	*"How much longer do you feel you are to going continue to subscribe to your MMO game? 30 days?"*	Formative	5.92	0.958
				"How much longer do you feel you are to going continue to subscribe to your MMO game? 60 Days"	Formative	5.76	0.96
				"How much longer do you feel you are to going continue to subscribe to your MMO game? 90 days"	Formative	5.57	0.93
				"How much longer do you feel you are to going continue to subscribe to your MMO game? 6 months?"	Formative	5.31	0.84

Table 15: Future Intentions Construct Mapping

6.4 Summated Likert Scales

This study uses as its measure a summated Likert scale which presumes the existence of an underlying (or latent or natural) continuous variable whose value characterises the respondents' attitudes and opinion (Mitchell and Jolley, 2007). In the case of Commitment-Trust Theory (Morgan and Hunt, 1994a) this relates to all of the underlying constructs, and thus the clear appropriateness of using psychological based summated Likert scales for measurement in this study.

Originally Likert's 1930's (Likert, 1967) recommendations for the weightings of summated scales was based on a generalisation that all of the correlations should be around the same magnitude, and each Likert scale item was weighted equally in the summated item. However developments in statistical analysis, mainly through the work of Guttman (1954), Cattell (1966) and Horn (1965), and the development of computers and computing power, has led to the Factor Loadings derived from Confirmatory Factor Analysis being the predominant method of determining the weighting of each of the Likert Scale items in the summated scale in both psychology and marketing research. This study follows this approach and on Tables 7 to 15 (p.131-138) displays the Factor Loading for each Likert scale item onto the construct.

6.5 Research Ethics

All research projects conducted at Newcastle Business School involving collection of primary data from human subjects must first obtain approval from the Newcastle Business School Ethics Sub-Committee and display compliance with Northumbria University's Code of Research Ethics. In accordance with the Code of Research Ethics, no participant under the age of 18 can be included in this research. This is further discussed in Research Boundaries and Scope in Chapter One.

A submission to the Newcastle Business School Ethics Sub-Committee was made in May 2009 (Appendix D) detailing data collection methods, sampling strategy, procedures for preserving confidentiality and the questionnaire

itself. The Committee accepted, in keeping with previous research in this area, that participation in the study was voluntary, informed consent was given by the participant at the start of the questionnaire and contributors were assured that their individual responses would be treated as confidential, with the ethical guidelines the researcher was operating under clearly defined from the outset. Additionally it was accepted that the dangers of the research to the participant was the same as the dangers of general web browsing. The Committee moreover reflected favourably on the use of an age declaration question at the start of the questionnaire which is reconfirmed by a later question.

6.6 Summary

The purpose of this chapter was to display the bridge between the definitions of the constructs delineated in Chapter Three, the iterative approach to good constructs emphasised in Chapter Five's discussion of Churchill's (1979) approach to research design, and the finally deployed research instrument discussed in the next chapter. Following the recommendations of Straub et al. (2004) this study has used, where possible, previously validated research measures. This is due to the emphasis this places on validity, reliability and consistency of the measures across studies. This chapter shows how a rigorous mapping was undertaken to firmly link the construct definition to the final instrument measures implemented.

Finally, this chapter has discussed the ethical clearance procedures undertaken before the collection of data from participants. The danger of this research to a participant is seen as negligible, with the possibility of harm arising from the research seen as extremely remote. This view was validated by an independent Research Ethics Board who approved and sanctioned the research to be undertaken.

Chapter Seven

Methodology and Method

Data Collection using Questionnaire Survey, Model Construction and Specification

7.1 Introduction

Empirical examinations of Commitment Trust Theory have been, from the seminal paper onwards, essentially the results of positivistic surveys which have been statistically analysed to display the predictive indicators of a particular behaviour. This chapter will provide evidence that the research data has been collected appropriately and that the results have been evaluated using suitable techniques to establish rigorous levels of reliability and validity.

7.2 Sampling and Sample Frame

As the number of subscribers is commercially sensitive information to online game producers, companies have thus far been unwilling to grant access to most researchers to their databases, with the recent exception of Williams et al.'s (2008) access to Sony Online Entertainment. During the preliminary stages of this research, requests were made to a number of leading MMORPG companies to be able to access their subscriber database and to

use their records to define a sample frame; all requests were denied or not replied to.

The lack of engagement of game companies with researchers is more the norm than the exception though. As Williams et al. (2006) discuss *"MMO space represents a special challenge to academic researchers seeking original empirical data…"* (p.6) as *"…MMO operators do not release data on their players"* (Williams et al., 2008, p.999). Due to these issues, and the general lack of willingness of the gatekeepers of the sample frames (the subscriber databases) to engage with academic researchers, empirical researchers have treated online gamers as a hard-to-access population (Goode, 2000). As such, extensive use in gaming research has been made of purposeful sampling, snowball sampling and self selected sampling (Goode, 2000; Yee, 2006), leaving researchers thus far to infer and correlate relationships from large scale samples derived from web based surveys posted on well travelled and regarded MMO gaming websites (Seay et al., 2004; Yee, 2006; Williams et al., 2008; Yee, 2009)

This produces issues of coverage bias in the data, however online gaming researchers accept this bias as a limitation of their work. As Yee (2006), a researcher who has regularly used large scale online survey techniques, discusses, despite the general concerns of online web based surveys of online gamers, large scale surveys can still generate insightful findings, *"Thus, even with its limitations, the survey methodology can still provide important insight to many questions that rely on inferential or correlational data"* (p.36).

Given these acknowledged issues, and given the hard-to-access nature of the population this research has used a self selecting snowball sampling method. This method should be seen as both an advantage in trying to reach a hard-to-access population and, however, a drawback in that it creates a non-random sample (Goode, 2000). To mitigate this, demographic benchmarking was undertaken to demonstrate that the sample population is similar to established demographic norms for MMO subscribers. However,

this is an overall limitation of the research, and will remain an overarching issue in all online gaming research unless and until researchers are able to develop relationships with the developers' of online games.

7.3 Coverage

In keeping with online research recommendations (Kozinets, 2002), permission was requested from the venues identified by the pilot participants via e-mail to place the questionnaire on their website. These included leading MMO-gaming websites and blogs, community podcasts and social spaces. In addition e-mail requests were sent to the Community Management addresses of Blizzard Entertainment (makers of World of Warcraft), CCP (makers of Eve Online) and Ncsoft (makers of City of Heroes/Villains) and a number of other MMO games requesting permission to promote the research on their forums. Of the venues that replied, the venues which the survey was finally deployed on are listed below.

Classification	Venue
Official websites and forums	World of Warcraft European Forums Eve Online Official Game Forums City of Heroes Official Game Forums
Social Networking Sites	Facebook World of Warcraft Players Group Linkedin World of Warcraft Players Group
MMO informational websites	MMO-Champion Forums MMORPG.com Official Forums WCRadio Podcast and Forums Zam.com Gaming Forums Tobold's Gaming Blog
E-mail	University of Northumbria (Full Directory)

Table 16: Coverage of Research Instrument

The use of in particular open online forums led to consideration of two key issues. Firstly, the issue that membership (and thus analysis of membership

numbers of these forums) of a non-official open online forum is not a pre-requisite of viewing these forums or linking through to the questionnaire survey instrument itself. The non-official web forums posted on are open to all internet users, which, given the literature on the effect of web "lurkers" in online survey research (Andrews et al., 2003) means that defining a sample frame becomes especially problematic, or indeed, as Couper (2000) discusses, impossible. Due to this, this study cannot classify the coverage of the questionnaire survey as the sample frame and notes this as a limitation of the research.

The second issue of a *"Pass-along effect"* (Norman and Russell, 2006, p.10) occurring with the research was also considered (in marketing often referred to as a viral marketing effect). This is where, because of the nature of the internet as a research medium for questionnaire surveys, the participants may start to refer friends or their social networks towards a particular survey link, or repost the link on other websites for people they think may be interested in replying. It was noted that an internet search of Google after the data collection period had ended, using the exact phrasing of the questionnaire, found that both the questionnaire preface and the hyperlink had been re-posted in 38 locations by participants beyond the initial websites.

As Norman and Russell (2006) discuss, this can be a positive addition to participation when investigating consumption based groups or subcultures in which *"that person is to interact with individuals who also share that affinity, whether through formal organizations (e.g., fan clubs, owner's clubs) or through informal conversation"* (p.10). In the case of MMOs where the very nature of the context is consumption, affinity based social groupings of individuals, it was deemed highly likely that the link to the survey would go beyond the original venues chosen (Norman and Russell, 2006, p.10). The *"pass-along effect"* thus has the benefit to this study of reaching further into a hard-to-reach population (Goode, 2000), at the cost of the researcher losing control of the venues the research is distributed to. While the *"pass-along effect"* (Norman and Russell, 2006, p.10) and web "lurkers" in online survey

research (Andrews et al., 2003) complicate the interpretation of the web survey's overall coverage this may be desirable for the purposes of snowball sampling for hard-to reach populations.

Both of these issues are over-arching concerns of all broad-based general internet questionnaire surveys. However, these issues are poorly documented and discussed in previous and similar research studies (Norman and Russell, 2006), and therefore they are highlighted by this study.

7.4 Data Collection

Data was collected from 1st of June 2009 until 19th of June 2009 using a self administered online questionnaire. Due to the online nature of the context and the participants, that having an internet connection is a requirement of playing an online game, using the internet as a method of communication was not seen as a barrier.

It was noted as a general limitation of this research that due to the character of websites in general and the voluntary nature of the promotion, no standard could be established as to how the initial contact message on the webpage would be displayed. In most locations this was a general forum post, amongst other forum users' posts, however on the Eve Online Official Forums the Community Manager posted the message at the top of the forums with a positive message encouraging participation. It is also difficult to draw meaningful comparisons between the coverage on webpages and the World of Warcraft community podcast radio station "WCRadio" who promoted the survey on their lead show, "Blueplz!", which had around 250,000 downloads that week (Blueplz!, 2009).

The use of community podcasts by this study and the timelag between podcasts being broadcast and downloaded is also linked to the *"pass-along effect"* (Norman and Russell, 2006, p.10) discussed in the previous section, as it soon became evident that a number of websites, blogs and forums beyond those specified and identified originally by this research quickly had the initial welcome message and a link to the main survey on them. This was

particularly from those who had listened to the radio podcast, a number of whom, on the podcast's online forum specifically mentioned that they had copied the link to their Guilds' private webspace.

Date	No of Respondents	%	Cumulative %
01-Jun-09	343	15.4	15.4
02-Jun-09	238	10.7	26.1
03-Jun-09	227	10.2	36.3
04-Jun-09	122	5.5	41.8
05-Jun-09	105	4.7	46.5
06-Jun-09	62	2.8	49.3
07-Jun-09	24	1.1	50.4
08-Jun-09	91	4.1	54.5
09-Jun-09	38	1.7	56.2
10-Jun-09	13	0.6	56.8
11-Jun-09	167	7.5	64.3
12-Jun-09	223	10	74.3
13-Jun-09	85	3.8	78.1
14-Jun-09	111	5	83.1
15-Jun-09	102	4.6	87.7
16-Jun-09	58	2.6	90.3
17-Jun-09	45	2	92.3
18-Jun-09	136	6.1	98.4
19-Jun-09	36	1.6	100
	2226	100	

Table 17: Rate of Responses

As Table 17 above shows 50.4% of the total data was collected in the first seven days of the deployment of the questionnaire survey, with the long tail of responses after that suggestive of the *"pass-along effect"* that Norman and Russell (2006, p.10) describe. These effects are seen by this study as a positive sign of the questionnaire survey being distributed widely amongst these hard-to-reach participants.

7.5 Data Validity

For data validation purposes the IP addresses of the respondents were analysed to confirm for possible bias in the data. It was found that 95.2% of the responses represented single occurrence unique IP addresses, with

4.8% (105 out of 2226 respondents) of the data representing multiple occurrences from the same IP address.

Of those 105 responses, the modal number of responses from a single IP address was two (with only one occurrence of an IP address having more than a frequency of 6). This is not uncommon in internet based research as Van Selm and Jankowski (2006) discuss regarding data checking in online surveys *"…different Internet users may legitimately have the same IP address…many Internet users are assigned IP addresses dynamically by Internet service providers..."* (p.450)

Given the increasing use of dynamic and organisation wide IP addresses by internet service providers (ISPs), the low modal occurrence rates of IP replication frequency, and the issue that many of the targeted participants may be University students answering from the same campus this study concludes that there is sufficient evidence and reasoning to infer that no malicious or intentional attempt has been made to generate multiple questionnaire completions or otherwise bias the data. Indeed, given the increasing use of overlapping in modern Network Address Translation routers, it may even be surprising that the percentage is so low. Due to these reasons the multiple responses from single IP addresses were kept within the data set.

7.6 Demographic Benchmarking

The key demographic indicators of the collected sample of 2,226 of which 1,529 were fully completed responses, represents a 68.7% full completion rate. This was then compared to the demographic results of other major studies (Table 18, p.144) conducted on the population of MMO games which had sample sizes of greater than 1,000 in the last five years (post-2005). Overall, the mean and median ages of this study's sample are consistent with other major studies and the gender split is comparable.

		This Study	Seay et al. (2004)	Yee (2006)	Williams et al. (2008)
Sample Size		2226	1836	30000*	7000
Sample Population		All MMO Gamers	All MMO Gamers	All MMO Gamers	Everquest 2 Only
Data Collection Procedure		Self administered online questionnaire	Self administered online questionnaire	Self administered online questionnaire	Self administered online questionnaire
Data Collection Method		Message Boards and website promotion related to online gaming	Message Boards and website promotion related to online gaming	Message Boards and website promotion related to online gaming	Operator Sony Online Entertainment cooperated with the research team and allowed access to subscribers
Gender					
	Male	90.5% (1357)	90% (1649)	85.40%	80.8% (5656)
	Female	9.5% (142)	10% (187)	14.50%	19.2% (1344)
Age					
	Mean	28.3	27	26.57	31.16
	median	27	N/A	25	31
	Min	18	12	11	12
	Max	69	68	68	65
Average hours played per week		23.77	21	22	25.82

* Data covers multiple individual surveys over a three year period

Table 18: Comparison of this study's data collected with other large scale research projects

7.7 Model Construction and Specification

This study applied a four stage process (Figure 14) to specifying the modelling following the guidelines of Kline (2007). This involved a data reliability phase and a construct reliability and validity phase before applying the *"two step rule"* (Blunch, 2008, p.159) to first estimate, identify and re-specify the model before final validation against established goodness-of-fit norms.

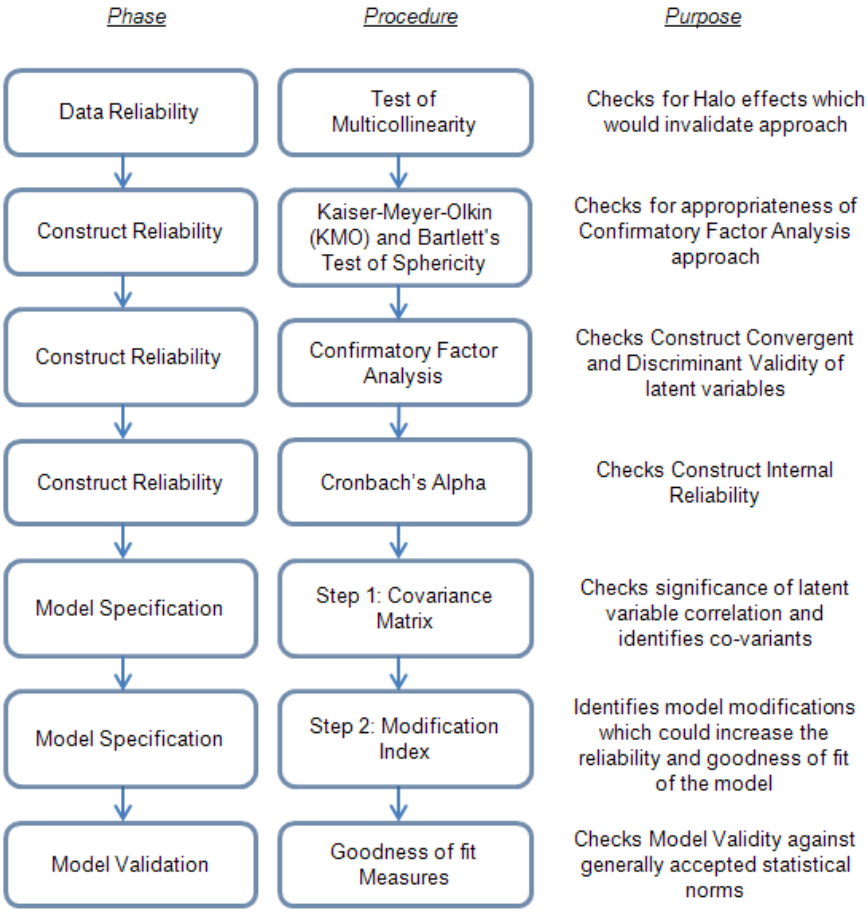

Figure 14: Process of Model Specification and Validation

7.7.1 Data Reliability: Test for Multicollinearity

When fitting a model of both dependent and independent variables a key check is a test for collinearity in the data, as it is important that the independent variables are not strongly inter-correlated and that “halo effects” or similar are not present. The standard test for collinearity is the Variance Inflationary Factor (VIF) test. VIF outputs of greater than 10 are sometimes used in statistics as the heuristic rule to conclude that the data displays too much collinearity (Kutner et al., 2004), though a more stringent heuristic rule of greater than five is often applied (Studenmund, 2006).

This study’s data was tested for collinearity (Appendix E i and ii) and it was found that no variable had a VIF of greater than two. As such this study concludes that there is no statistical evidence of multicollinearity even at the most stringent levels of the heuristic rule.

7.7.2 Construct Reliability: Kaiser-Meyer-Olkin (KMO) and Bartlett's Test of Sphericity

Before starting Confirmatory Factor Analysis both Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy and a Bartlett's Test of Sphericity were calculated to ensure that there was adequate indication that a Confirmatory Factor Analysis approach was a valid one to undertake. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy tests whether the partial correlations among variables are small or too low for the factor model to be appropriate and runs from a continuum of 0 to 1 with the nearer to 1 the better (Todman and Dugard, 2007, p.168). Bartlett’s test of sphericity test is a null hypothesis test examining whether the correlation matrix is an identity matrix, which would indicate that the factor model is inappropriate. Taken together, these tests provide a minimum standard which should be passed before a Confirmatory Factor Analysis should be conducted. Separate analysis of the antecedents, the psychological outcomes and the behavioural outcome measures were compiled, as Confirmatory Factor Analysis should not be used to measure dependent and independent variables together

(Todman and Dugard, 2007), but often, and incorrectly, is, in Commitment Trust Theory research (Vatanasombut et al., 2008, p.423).

As shown by Appendix F (part i to iii), the antecedent variables, the psychological outcomes and the behavioural outcomes each when analysed displayed a KMO value of greater than the recommended (Todman and Dugard, 2007, p.170) minimum value of 0.6 (Antecedents = 0.880, Psychological Outcomes = 0.929, Behavioural Outcomes = 0.864). In addition the Bartlett's Test of Sphericity rejected the null hypothesis that the correlation matrix is an identity matrix with the $p<0.01$ in each case (significance = 0.000 on all three). Thus both tests indicated that a Confirmatory Factor Analysis approach was viable.

In addition, the high values of KMO indicate that the case for using Confirmatory Factor Analysis to reduce the number of variables is very strong. As discussed further in Kaiser and Rice (1974) the general heuristic calibration and interpretation of the scale indicated a *"Meritorious"* case for applying Confirmatory Factor Analysis to the antecedents and behavioural outcomes and a *"Marvellous"* case for applying Confirmatory Factor Analysis to the Psychological Outcomes to reduce the number of variables.

7.7.3 Construct Reliability: Confirmatory Factor Analysis

Next, given the indications of the KMO test, Confirmatory Factor Analysis was used to determine construct validity (both convergent and discriminant validity) of the conceptual latent constructs. A matrix of correlation coefficients (R-matrix) was first generated examining all possible pairings of the variables. From the correlation matrix, factors were extracted using Eigenvalues greater than 1 as the discriminator, applying the K-G Rule (Kaplan, 2008, p.303). In keeping with the recommendations of both Todman and Dugard (2007, p.169) and Kinnear and Gray (2009, p.567) a VARIMAX Rotation was applied to facilitate interpretation of the results. In this rotation the number of factors was left unforced in number (the number of orthogonal factors was left free) which is seen as a more robust approach than

predefining the number of factors. The results supported the conceptual factor structure discussed (Appendix G parts i to iii).

Following the recommendations of Todman and Dugard (2007, p.173) and previous research in Commitment Trust Theory (Vatanasombut et al., 2008, p.423), the loading of the variable onto the factor (Factor Loading) used a discriminator of 0.5 as the test of convergent validity, meaning the variable had to show a correlation of at least 0.5 with the factor to be robust and valid. Analysis of the application of this discriminator (Appendix G, i, c) on the Antecedents led to the elimination of six variable items which did not show sufficient convergent validity to be considered robust measures of the latent variable. Furthermore, the analysis of the psychological and behavioural outcomes (Appendix G, ii and iii, parts c) eliminated one item which lacked sufficient convergent validity. The analysis also identified two items which had significant cross-loading onto multiple factors. In keeping with general marketing research and statistical methods practice (Todman and Dugard, 2007, p.173) to ensure discriminant validity and factor purity these two scale items were also eliminated.

Finally, in keeping with established statistical conventions (Blunch, 2008, p.127) and previous Commitment Trust Theory studies (Vatanasombut et al., 2008, p.423) the Factor Loadings from the VARIMAX Confirmatory Factor Analysis were then used as the Factor Loadings for the observed variables to the latent variables in the Structural Equation Model.

7.7.4 Construct Reliability: Cronbach's Alpha

To ensure internal consistency and reliability (which is differentiated from Convergent and Discriminant validity) of the scales, Cronbach's Alpha coefficients were then calculated. To improve the Cronbach's Alpha coefficients to acceptable reliabilities (0.7 or higher) a further two scale items were eliminated (one from Trust, one from Commitment) and these resultant coefficients are displayed in Tables 7 to 15 (p.131-138) in Chapter Six along with the scale items and the factor loadings of the measures.

The elimination of scale items on the basis of improving construct validity and reliability was not unexpected. The pilot stage of the research was based on a much smaller sample size than the final questionnaire and represented a non-random, non-statistically valid selection of participants selected for the purposes of feedback and improvement. The pilot as such thus represents an iterative process of improving the research instrument, and as such, it is to be expected that scale items may be included which later, when examined with a much larger data set, do not show the same data characteristics of the pilot. To paraphrase Campbell's (1960, p.550) discussion of the elimination of scale items through improving construct validity, the scales were not introduced as the exhaustive definition of the constructs, but rather as a tentative operational representation of the construct. In the initial pilot, these eliminated scale items were considered empirically meaningful measures, however they were never assumed to be the sole or exhaustive measures of the construct.

7.7.5 Model Specification: Two step Procedure Application

The two step procedure, sometimes called the *"two step rule"* (Blunch, 2008, p.159), was then applied to the model. The two step procedure flows from the recommendation of Anderson and Gerbing (1988) that structural models should first be separately estimated, identified and re-specified before simultaneous estimation of the measurement and structural model. It is usual in Commitment Trust Theory research (and Structural Equation Modelling in general) to apply the *"two step rule"* to confirm the proposed pathways of models.

7.7.5.1 Step 1: Covariance/Correlation Matrix

The first stage of the two step rule is to look at all of the latent variables as covariates of each other. This step presumes no causal linkage between the variables (that can only come from theoretical propositioning), and the results of this analysis are shown in Table 19 below.

	AGI	GC	GSB	IGCSI	KOA	MB	OB	PS	PGD	SVC	SVG	T	C	CS	FI
AGI	1	0.484****	0.282****	0.336****	0.197****	0.357****	0	0.316****	0.353****	0.433****	0.317****	0.577****	0.311****	0.364****	0.023
GC		1	0.758****	0.228****	0.253****	0.519****	-0.026	0.393****	0.162****	0.385****	0.35****	0.414****	0.641****	0.472****	0.096****
GSB			1	0.196****	0.145****	0.385****	-0.045	0.385****	0.16****	0.302****	0.291****	0.301****	0.505****	0.404****	0.09****
IGCSI				1	0.062**	0.159****	-0.079***	0.37****	0.452****	0.465****	0.241****	0.48****	0.241****	0.315****	0.03
KOA					1	0.229****	-0.049*	-0.009	0.059**	0.075***	0.221****	0.17****	0.071**	0.003	-0.048*
MB						1	-0.037	0.388****	0.194****	0.292****	0.202****	0.317****	0.598****	0.392****	0.136****
OB							1	-0.065**	-0.101****	-0.07**	-0.273****	-0.1****	-0.124****	-0.058*	-0.057*
PS								1	0.442****	0.639****	0.324****	0.51****	0.696****	0.844****	0.353****
PGD									1	0.604****	0.241****	0.527****	0.27****	0.32****	0.124****
SVC										1	0.374****	0.652****	0.502****	0.582****	0.175****
SVG											1	0.375****	0.292****	0.28****	0.081***
T												1	0.481****	0.471****	0.114****
C													1	0.756****	0.304****
CS														1	0.316****
FI															1

Where: AGI = Availablity of Game Information, GC = Game Capital, GSB = Group Social Benefits, IGCSI = In-game customer service interactions, AGI= Availablity of Game Information, KOA = Knowledge of Alternatives, MB = Metagame Benefits, OB = Opportunistic Behaviours, PS = Past Satisfaction, PGD = Perceptions of Game Developers', SVC = Shared Values with Company, SVG = Shared Values with Game, T = Trust, C = Commitment, FI = Future Intentions

* r > 0.047 indicates Significant at 5% level when n=2226.
** r > 0.059 indicates Significant at 1% level when n=2226.
*** r > 0.073 indicates Significant at 0.1% level when n=2226.
**** r > 0.085 indicates Significant at 0.01% level when n=2226.

Table 19: Covariance/Correlation Matrix of Latent Variables

As expected Trust as a latent variable displayed statistically significant correlations with availability of in-game information, in-game customer service interactions, knowledge of alternatives, opportunistic behaviours, perceptions of game developers communications, shared values with games company, shared values with rules and current satisfaction.

Similarly, Commitment as a latent variable displayed statistically significant correlations with game capital, group social benefits, metagame benefits, past satisfaction and current satisfaction. Trust and Commitment were also found to have a significant correlation with each other and Satisfaction.

In common with previous Commitment Trust Theory empirical work the antecedents displayed strong correlations with both Commitment and Trust. In most cases, the stronger correlation of the two was seen to follow the theoretically expected pathway (as discussed in the previous chapter). For example in Table 19, availability of in-game information has a 0.577 correlation with Trust and a 0.311 correlation with Commitment. In a few cases though, like the knowledge of alternatives latent variable, while it displays statistically significant relationships with both Commitment (0.071, significant at the 5% level) and Trust (0.17, significant at the 0.01% level), the stronger relationship is with Trust and not Commitment as the theoretical model proposes. This is both common and expected in Commitment Trust Theory empirical work. The Relationship Benefits latent variable in Morgan and Hunt's (1994a, p.26) paper for example was theoretically purported to be a determinant of Commitment, however it had a stronger correlation with Trust (0.425 vs 0.312). This is due to the covariance/correlation matrix displaying the measurement of strength and direction between two variables, but not a theoretical basis for causality. Thus while it is possible to infer that relationships exist between variables from the matrix, interpreting the causal nature of these relationships comes from a theoretical basis, not a statistical matrix.

Additionally, as is common in Structural Equation Modelling (Blunch, 2008), and as displayed in both the seminal Morgan and Hunt study (1994a, p.29)

and in subsequent Commitment Trust studies, many of the variables displayed significant co-variances. As such, the model was re-specified to have the antecedents as co-variants of each other for modelling purposes, which would normally be displayed as double headed arrows on the model. As Blunch (2008, p.85) discusses however *"…complicated models will give rise to a large number of such two headed arrows, which will contribute to the messiness of the drawing".* Structural equation diagrammatic models are to inform the reader, in an easy to understand format, as to the structure of the relationships and their direction of paths, not to confuse the reader with a messy diagram covered in covariance double headed arrows. In keeping with Blunch's (2008) recommendations this study notes that on the structural diagrams presented in this thesis that the antecedent variables are co-variants, but does not display them on diagrams as such, for readability purposes.

7.7.5.2 Step 2: Modification Index Application

In keeping with the structured two step approach to applying structural equation modelling (Arbuckle, 2009, p.107) the covariance sample matrix of the variables and error functions in the model was analysed by using the Modification Index application of AMOS. This index function identifies potential model modifications which could increase the reliability and goodness of fit of the model. Though (mis)-application of this technique, or *"slavish reliance"* (Arbuckle, 2009, p.112) has its dangers in that inappropriate models can be identified, this study's use of the Modification Index flows from the conceptual basis, *"a modification should be considered only if it makes theoretical or common sense."* (Arbuckle, 2009, p.112)

From the output of the Modification Index analysis it was apparent from the data that a number of significant covariances existed in some of the error measurements (variances) of a number of observed variables. These variances related to concepts which would conceptually be expected to be interlinked measures, for example the variance (measurement error) of participants answering the fourth question on their Future Intentions to re-

subscribe is logically going to be similar to a related and subsequent fifth question regarding their Future Intentions to re-subscribe. Thus from a construct validity perspective, the addition of identified covariances of measurement error to the model makes *"common sense"* (Arbuckle, 2009, p.112) between the underlying variables singular latent variables. The model was consequentially re-specified on this basis with the errors allowed to co-vary in the model.

A structured approach was applied by this study in analysing and adapting the model to take into account the findings of the modification index (Appendix H). As conceptually it was logical that only covariances existed between the measurement errors (variances) of the items that constituted latent variables, only these where examined at the recommended threshold of 4 (Kline, 2007). This approach eliminated a number of spurious links identified by the modification index which did not logically fit with either the underlying literature or Commitment Trust Theory. Next, non-reciprocal links were eliminated from the analysis. By definition for there to be a covariance there must be a reciprocal connection between both items, thus while non-reciprocal indications from the Modification Index may indicate a possible connection between the variables (as may be expected in variables measuring the same latent construct), they do not fit within the logic being applied to examine covariance in the measurement errors.

Finally, with the model re-specified according to the two-step procedure, to check the internal validity of the additional measurement error covariance, significance tests were conducted. The significance tests concluded that of the covariances added to the amended model, two of the proposed covariances where not sufficiently statistically significant to indicate a robust and internally valid addition. These two non-significant amendments were eliminated from the model. Of the other measurement error covariances, all were found to be significant at either the 0.001 and 0.05 level. As such these amendments were incorporated into the re-specified model as they are internally valid.

As a final consideration for Construct Validity, and to add rigour to the re-specification, the questions the measurement error covariances related to were then re-examined to see if the logical basis of the argument for the amendments was compelling. This process is recommended by Arbuckle (2009) as a final *"common sense"* (p.112) check. After examination of the questions it was judged that there was sufficient logical rationale to conclude that the variance (measurement error) in the specified questions, all measuring the same latent variable, would be expected to be covariates. In other words, if a respondent is answering related questions regarding the same concept, it is logical to presume his answers would vary in the same direction.

7.7.6 Model Validation: Discrepancy Function, Missing Data Entries and Model Fit Statistics

The re-specified Seventeen Path model was then analysed using goodness-of-fit statistical tests using a discrepancy function. Structural Equation Modelling allows for a number of Model Fit tests to determine if the data correctly follows the designated structural paths. The tests and AMOS analysis in general require a discrepancy function to be selected, which measures the discrepancy of the data from the model. In this study the Full Information Maximum Likelihood (FIML) function of AMOS was selected based on the recommendations of Enders (2001, p.713) as the dataset for this study contained missing data entries.

Alternative discrepancy functions (particularly generalised least squares) require the censoring of a data set so that no missing data entries exist, usually through listwise deletion, pairwise deletion or mean imputation. This data censoring in itself creates a data bias, and thus, based on the findings of Enders (2001) and subsequent studies by Peugh and Enders (2004) and Davey and Savla (2009) the Full Information Maximum Likelihood (FIML) discrepancy function is seen as a superior technique when dealing with data containing missing data values over alternative methods of dealing with that issue.

Application of the Full Information Maximum Likelihood (FIML) discrepancy function allowed for the complete sample dataset to be analysed and statistical measures of goodness-of-fit to be applied. The following measures, in Table 20 below, of goodness-of-fit tests have been applied to the model in keeping with previous empirical work in the Commitment Trust Theory area (Vatanasombut et al., 2008, p.424), and recommendations of Structural Equation Modelling analysis texts such as Blunch (2008).

Goodness of Fit Test	Thresholds and Interpretation	Seventeen Path Model
Relative Chi Squared	*… different researchers have recommended using ratios as low as 2 or as high as 5 to indicate a reasonable fit.* (Marsh and Hocevar, 1985, p.567)	Relative Chi Squared= 4.636
Comparative Fit Index (CFI)	*In our experience, models with overall fit indices of less than .9 can usually be improved substantially. These indices, and the general hierarchical comparisons described previously, are best understood by examples.* (Bentler and Bonett, 1980, p.600)	CFI= 0.899
Normed fit index (NFI)		NFI= 0.875
Incremental Fit Index (IFI)		IFI= 0.900
Root mean square error of approximation (RMSEA)	*Practical experience has made us feel that a value of the RMSEA of about .05 or less would indicate a close fit of the model in relation to the degrees of freedom.* (Browne and Cudeck, 1993, p.239)	RMSEA= 0.04

Table 20: Goodness-of-Fit Statistics for Seventeen Path Model

The goodness-of-fit measurement statistics indicate a good structural fit of the pathways with the comparative fit index (CFI) indicating the model has a discrepancy that is 89.9% *"of the way between the (terribly fitting) independence model and the (perfectly fitting) saturated model"* (Arbuckle, 2009, p.598). In addition the root mean square error of approximation (RMSEA) indicates a very close fit of the model. Further goodness-of-fit was

then considered by examining the squared multiple correlations (also called the coefficient of determination, commonly notated as R^2).

7.7.7 Model Validation: Coefficient of determination

The coefficient of determination measures the proportion of the variance in the dependent variable that is explained by the independent variable, and as such, it provides another indicator of goodness of model fit. The coefficient of determination measure is in a continuum between 0 (indicating a very poor model fit) and 1 (indicating a perfect model fit).

In the original Morgan and Hunt (1994a, p.29) study just over half the variance of the antecedent variables of Commitment explained the behaviour of Commitment, with the coefficient of determination being 0.552. In this study, the coefficient of determination for the antecedent variables of Commitment is 0.773, meaning the underlying variables of Commitment predict 77% of the movement in Commitment, and thus there is a strong indication that these variables are relevant to Commitment. Similarly, the original Morgan and Hunt (1994a, p.29) study found a coefficient of determination of 0.743 for Trust, and in this study 0.678. Thus the underlying variables of Trust account for 68% of the variance in Trust.

Finally, the summated coefficient of determination for the outcome of this study's complete structural model is 0.857, meaning that the underlying variables of the model account for 86% of the variance. This is comparable to Morgan and Hunt's (1994a, p.30) finding of 0.81 for their model.

7.8 Summary

Model fit statistics should be taken as a number of indicators which, together, give a weight of evidence to suggest that the data fits the structural model well. The first indication of this is from the application of the two step rule which found strong correlations along the model's expected relationships. The next indication comes from the model fit statistics which indicate that the model is very firmly within acceptable benchmarks for Relative Chi Squared, Comparative Fit Index, Normed Fit Index, Incremental Fit Index and Root

Mean Square Error of Approximation. With the Comparative Fit Index in particular indicating an 89.9% fit of the data to the model. Finally, the total coefficient of determination for the structural model is 0.857 indicating significant explanatory power. Taken together, these inferential statistics give a weight of evidence that the Seventeen Path Model presented in this study represents both the data and the inter-relationships of that data very well.

Chapter Eight

Results and Findings

Confirmatory Modelling

8.1 Introduction

This study presented in Chapter Four 17 confirmatory hypotheses regarding the predicted nature of the associations between the constructs. This chapter first presents the findings from the statistical tests that were conducted to examine these hypotheses. This then forms the basis of the interpretation and analysis of the nomological framework.

The statistical tests presented in this chapter test associations between constructs in an established theoretical framework; it is the established framework of Commitment Trust Theory which implies the causal relationships. This study, as with all other Structural Equation Modelling based studies, can only go as far as to provide evidence to support or reject the proposed theoretical relationships from the sample data taken.

Structural Equation Modelling tests whether the pattern of variances and covariances in the data is consistent, using goodness-of-fit tests, with the structural model specified. It does not examine the size of the effects or examine if a better model exists which explains the data either just as well or better. Therefore, keeping with this study's Alternative Models approach, this study first presents evidence that a mediating variable approach is an

appropriate one by comparing this study's Seventeen Paths Model against a Morgan and Hunt "Rival Model" in which the antecedent constructs and the psychological constructs directly path to the future intentions construct. This chapter then compares the nomological framework to an alternative model based on a Cohen's (1988) f^2 effect size perspective and gives evidence of a more simplified model for the data which can also be supported by goodness-of-fit measures. Based on the findings of the analysis undertaken, this chapter then closes with a discussion of the implications of the comparison of the three models presented. In meeting the aim of improving the understanding of the re-subscription relationship this study interprets the outcomes of the modelling and considers their implications in the process of the creation of knowledge, with an emphasis on the role of parsimony within knowledge generation in Structural Equation Modelling based investigations.

8.2 Structural Equation Modelling: Seventeen Path Model

The results of the Structural Equation Modelling analysis are presented in Table 21 over the next three pages. In keeping with good practice, the first two columns of the table present both the unstandardised regression estimate and the standardised regression estimate. The unstandardised regression estimate also shows the statistical significance of the relationship found. In the next two columns this study, unlike previous studies in the Commitment Trust Theory literature, has also examined the effect size of the associations and has given both the Cohen's f^2 value for the relationship and the interpretation of Cohen's f^2 effect size heuristic indicator. The fifth and sixth columns of the table formally restate the hypothesis which was examined and give the indication, from the sample data, of whether that hypothesis is either supported (not disconfirmed) or cannot be supported from the data examined. Finally, the last column of the table, for comparison purposes, lists the findings of Morgan and Hunt's (1994a) original findings.

Path	Unstandardised Regression Estimate	Standardised Regression Estimate	Cohen's F^2	Cohen's F^2 Effect Size Indicator	Hypothesis	Results	Results from Morgan and Hunt (1994a)
Commitment <--- Game Capital	0.305***	0.276	0.08	Small	*H_1: There is a positive relationship between Game Capital and Commitment*	Supported	*Supported a positive relationship between Relationship Termination Costs and Commitment*
Commitment <--- Knowledge of Alternatives	-0.07**	-0.068	0.00	Insignificant	*H_2: There is a negative relationship between Knowledge of Alternatives and Commitment*	Supported but effect size noted	*Supported a positive relationship between Relationship Termination Costs and Commitment*
Commitment <--- Group Social Benefits	0	0	0.00	Insignificant	*H_3: There is a positive relationship between Social Group Benefits and Commitment*	Not Supported	*Could not find evidence of a positive relationship between Relationship Benefits and Commitment*
Commitment <--- Metagame Benefits	0.305***	0.267	0.08	Small	*H_4: There is a positive relationship between Metagame Benefits and Commitment*	Supported	*Could not find evidence of a positive relationship between Relationship Benefits and Commitment*
Commitment <--- Past Satisfaction	0.221***	0.201	0.04	Small	*H_5: There is a positive relationship between Past Satisfaction and Commitment*	Supported	*Could not find evidence of a positive relationship between Relationship Benefits and Commitment*
Commitment <--- SV with Company	-0.076	-0.069	0.00	Insignificant	*H_6: There is a positive relationship between Shared Values with Company and Commitment*	Not Supported	*Supported a positive relationship between Shared Values and Commitment*

Table 21: Seventeen Path Model Findings

Path	Unstandardised Regression Estimate	Standardised Regression Estimate	Cohen's F^2	Cohen's F^2 Effect Size Indicator	Hypothesis	Results	Results from Morgan and Hunt (1994a)
Commitment <--- SV with Game rules	-0.037	-0.027	0.00	Insignificant	*H_7: There is a positive relationship between Shared Values with Game Rules and Commitment*	Not Supported	*Supported a positive relationship between Shared Values and Commitment*
Commitment <--- Current Satisfaction	0.504***	0.385	0.17	Medium	*H_8: There is a positive relationship between Current Satisfaction and Commitment*	Supported	*Not Proposed*
Trust <--- SV with Company	0.417***	0.483	0.30	Medium	*H_9: There is a positive relationship between Shared Values with Game Rules and Trust*	Supported	*Supported a positive relationship between Shared Values and Trust*
Trust <--- SV with Game Rules	0.085**	0.077	0.01	Insignificant	*H_{10}: There is a positive relationship between Shared Values with Company and Trust*	Supported but effect size noted	*Supported a positive relationship between Shared Values and Trust*
Trust <--- In-Game Customer Service Interactions	0.089***	0.117	0.01	Insignificant	*H_{11}: There is a positive relationship between In-Game Customer Service Interactions and Trust*	Supported but effect size noted	*Supported a positive relationship between Communication and Trust*
Trust <--- Availability of in-game information	0.291***	0.266	0.08	Small	*H_{12}: There is a positive relationship between Availability of In-game Information and Trust*	Supported	*Supported a positive relationship between Communication and Trust*

Table 21: Seventeen Path Model Findings (Cont.)

Path	Unstandardised Regression Estimate	Standardised Regression Estimate	Cohen's F^2	Cohen's F^2 Effect Size Indicator	Hypothesis	Results	Results from Morgan and Hunt (1994a)
Trust <--- Perceptions of Game Developers' Communications	0.035	0.07	0.00	Insignificant	*H_{13}: There is a positive relationship between Perceptions of Game Developers' Communications and Trust*	Not Supported	*Supported a positive relationship between Communication and Trust*
Trust <--- Opportunistic Behaviours	-0.026	-0.04	0.00	Insignificant	*H_{14}: There is a negative relationship between Opportunistic Behaviours and Trust*	Not Supported	*Not Proposed*
Trust <--- Current Satisfaction	0.028	0.027	0.00	Insignificant	*H_{15}: There is a positive relationship between Current Satisfaction and Trust*	Not Supported	*Supported a negative relationship between Opportunistic Behaviors and Trust*
Commitment <--- Trust	0.113*	0.085	0.01	Insignificant	*H_{16}: There is a positive relationship between Trust and Commitment*	Supported but effect size noted	*Supported a positive relationship between Commitment and Trust*
Future Intentions <--- Commitment	0.413***	0.289	0.09	Small	*H_{17}: There is a positive relationship between Commitment and Future Intentions*	Supported	*Supported a positive relationship between Commitment and relationship continuance constructs*

*Significant at the 0.05 level

** Significant at the 0.01 level

*** Significant at the 0.001 level

Table 21: Seventeen Path Model Findings (Cont.)

In all, this analysis found sufficient statistical evidence to support 11 of the 17 hypotheses proposed by the study. For four of those 11 supported hypotheses however it was noted that the Cohen's f^2 of the relationship, the effect size of the relationship, was so low as to make it, using Cohen's heuristic indicator, insignificant. When the statistically significant paths are shown in mathematical terms (Box 21) it is clear that the standardised regression estimates of Shared Values with Game Rules, In-game customer service interactions, Knowledge of Alternatives and, importantly, Trust, represent only fractional changes in the dependent variables, despite being found to be statistically significant. The Shared Values with Company construct was found to be a leading predictor of Trust (with a medium size effect) along with the availability of game information. The four variables of Game Capital, Metagame benefits, Past Satisfaction and Current Satisfaction were together found to be the leading indicators of Commitment.

$$X_T = 0.483\,X_{svc} + 0.077\,X_{svg} + 0.117\,X_{igcs} + 0.226\,X_{agi} + \delta_1$$

$$X_C = 0.276\,X_{gc} - 0.068\,X_{koa} + 0.267\,X_{mb} + 0.201\,X_{ps} + 0.385\,X_{cs} + 0.085\,X_T + \delta_2$$

$$X_{FI} = 0.289\,X_C + \delta_3$$

Where: X_T= Trust, X_{svc}= Shared Values with Company, X_{svg}= Shared Values with Game Rules, X_{igcsi}= In-game customer service interactions, $X_{agi=}$ Availablity of Game Information, X_{cs} = Current Satisfaction, X_{mb}= Metagame Benefits, X_C= Commitment, X_{gc}=Game Capital, X_{koa}=Knowledge of Alternatives, X_{ps} = Past Satisfaction, X_{FI}= Future Intentions, $\delta_{1=}$Error of Trust, δ_2= Error of Commitment, δ_3= Error of Future Intentions

Box 21: Mathematical Representation of the Significant Paths in the Seventeen Path Model

Figure 15 below diagrammatically displays the paths tested using structural equation modelling with the standardised regression estimates shown. While the Trust mediating construct was found to have a statistically significant relationship with Commitment, the effect was very small with only a standardised regression estimate of 0.085, a value which the Cohen's f^2 value describes as having an insignificant effect size.

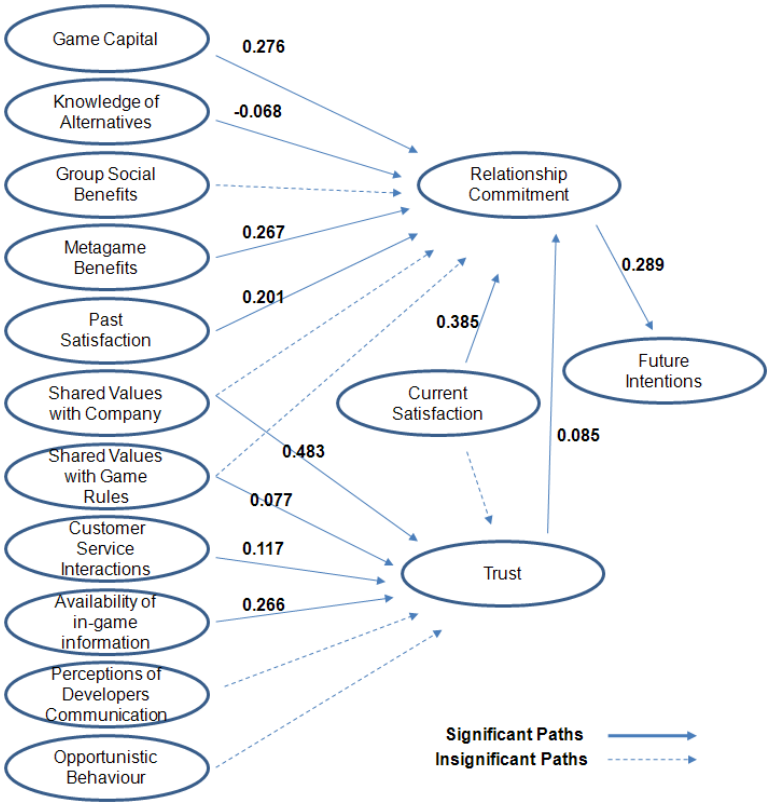

Figure 15: Seventeen Path Model with Standardised Regression Estimates

The lack of importance of the Trust mediating variable is perhaps better seen though by considering the indirect effects of Trust and the antecedent Trust constructs upon the Future Intentions construct (Table 22).

Indirect Path	Standardised Indirect Effects
Future Intentions <----Trust	0.025
Future Intentions <---- Availability of in-game information	0.070
Future Intentions <---- Group Social Benefits	0.000
Future Intentions <---- Opportunistic Behaviors	-0.001
Future Intentions <---- Perceptions of Game Developers' Communications	0.002
Future Intentions <---- In-game customer service interactions	0.003
Future Intentions <---- Shared Values with Company	-0.006
Future Intentions <---- Shared Values with Game rules	-0.008

Table 22: Indirect Effects of Trust and Trust antecedents

Given this, and given the evidence of the insignificant effect size of the Commitment ← Trust conceptual path, this study, based on the evidence, comes to the following conclusion. That while there is sufficient statistically significant evidence to support 11 of the 17 Commitment Trust Theory construct relationship paths, and sufficient statistical goodness of fit evidence to support a Seventeen Path adaptation of the Morgan and Hunt (1994a) model, there is also evidence, based on the insignificant Cohen's f^2 values of a number of the relationships (particularly Trust), to suggest that a more parsimonious explanation may exist which fits the sample data. This more parsimonious model would not be a rejection of the Morgan and Hunt (1994a) model, nor would it reject the support for the hypotheses found in the analysis. It could however provide a more straightforward explanation of the sample data.

8.3 Alternative Models Approach: "A Rival Model"

This study, in keeping with Morgan and Hunt's (1994a) original approach, first presents evidence that the sample data is better represented and modelled by a mediating variable approach. This is in keeping with good modelling practice and has subsequently been an approach taken by Commitment Trust Theory researchers such as Mukherjee and Nath (2007, p.1189).

This study presents a non-mediating variable Morgan and Hunt "Rival Model", which has been examined using Structural Equation Modelling. In keeping with the approach, all of the antecedent constructs and the psychological outcomes path directly to the behavioural outcome, thus indicating in the Rival Model that the mediating variables of Commitment and Trust are just more antecedents which are treated exactly the same as all of the others.

This Morgan and Hunt "Rival Model" was analysed using the AMOS statistical software and the goodness of fit measures were compared against this study's measurement of fit statistics. The goodness of fit statistics are all significantly lower for the "rival model" and are detailed in Table 23 below.

Goodness of Fit Test	Thresholds and Interpretation	Seventeen Path Key Mediating Variable Model	A Morgan and Hunt "Rival Model"
Relative Chi Squared	*... different researchers have recommended using ratios as low as 2 or as high as 5 to indicate a reasonable fit.* (Marsh and Hocevar, 1985, p.567)	Relative Chi Squared= 4.636	Relative Chi Squared= 8.431
Comparative Fit Index (CFI)	*In our experience, models with overall fit indices of less than .9 can usually be improved substantially. These indices, and the general hierarchical comparisons described previously, are best understood by examples.* (Bentler and Bonett, 1980, p.600)	CFI= 0.899	CFI= 0.787
Normed Fit Index (NFI)		NFI= 0.875	NFI= 0.766
Incremental Fit Index (IFI)		IFI= 0.900	IFI= 0.788
Root mean square error of approximation (RMSEA)	*Practical experience has made us feel that a value of the RMSEA of about .05 or less would indicate a close fit of the model in relation to the degrees of freedom.* (Browne and Cudeck, 1993, p.239)	RMSEA= 0.04	RMSEA= 0.058

Table 23: Goodness of Fit statistics for a Morgan and Hunt "rival model"

The Relative Chi Squared figure of 8.431 places the Morgan and Hunt "rival model" outside of the threshold interpretation of that statistic and indicates the sample data does not fit the rival model very well. Similarly, the Comparative Fit Index indicates that the data is only 79% *"of the way between the (terribly fitting) independence model and the (perfectly fitting) saturated model"* (Arbuckle, 2009, p.598), as compared to the 89.9% in the Seventeen Path Model.

The comparatives for the Normed Fit Index and Incremental Fit Index also indicate a poorer fit for the rival model to the data than the Seventeen Path model. Finally, the Root mean square error of approximation (RMSEA)

statistic also indicates that the Morgan and Hunt "Rival Model" is a comparatively poorer fit than the Seventeen Path model.

While all of the goodness of fit statistics discussed thus far are supportive of this study's Seventeen Path mediating variable model over a Morgan and Hunt non-mediated "rival model", it is the explanatory power of the two models, the coefficient of determination, which gives the most significant indication of the difference between the two models. This study's Seventeen Path mediating variable model has a coefficient of determination of 0.857, meaning that the underlying variables of the model account for 86% of the variance in the model. This compares well to Morgan and Hunt's (1994a, p.30) finding of 0.81 for their model. The Morgan and Hunt non-mediated "Rival Model" though has a coefficient of determination of 0.086, meaning that the "Rival Model" explains only around 9% of the total variance in the model.

This leads to the conclusion that, based on the evidence, a mediating variable approach to examining the sample data is substantially a better fit when compared to a Morgan and Hunt non-mediated "Rival Model" approach. The goodness of fit statistics all indicate a better fit for the Seventeen Path mediating variable approach and the coefficient of determination of the model evidences much greater explanatory power.

8.4 Alternative Models Approach: A Five Path Model

This study now moves on to examine a model based on the effect size indications of the Cohen's f^2 value. Of the 11 hypotheses supported with statistically significant findings only seven of these findings displayed at the very least a small effect size. Additionally, as the Commitment ← Trust conceptual path was found to have an insignificant effect size this indicates that all of the antecedent paths which lead to Trust have actually, in summation, an insignificant statistical effect size upon the decision to re-subscribe.

In short, a more parsimonious mediating variable model based on the effect size of the relationships is one that is based on just one mediating variable;

Commitment. Furthermore, only the four antecedents of Game Capital, Metagame Benefits, Past Satisfaction and Current Satisfaction are associated with Commitment in this more parsimonious model due to their effect size f^2 indicator.

This leads to a more simplistic model (Figure 16) which reduces 17 paths to five paths, a 70% reduction in the complexity of the model. This more efficient five path model was then tested using the AMOS structural equation modelling software and goodness of fit measures produced.

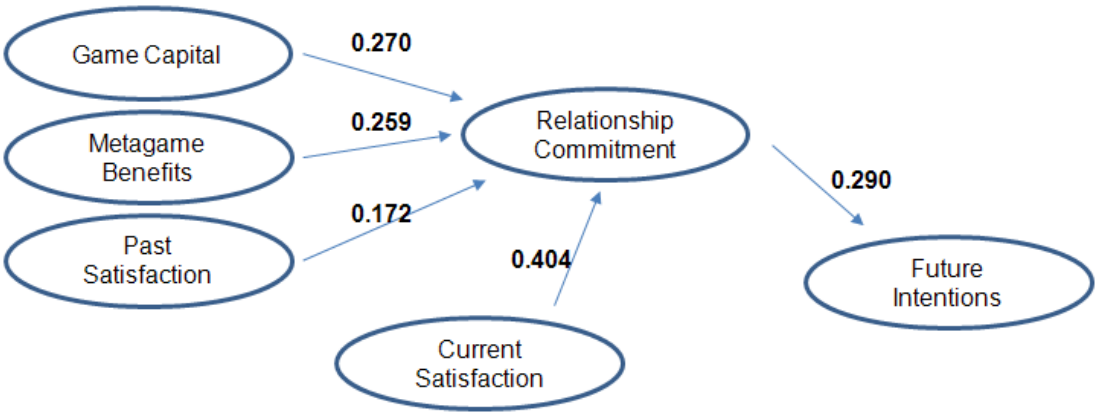

Figure 16: Five Path Model with Standardised Regression Estimates

For completeness and rigour, this study then re-tested the hypotheses relating to the five path model to evidence whether or not they still held true given the reduction in complexity. The results of that analysis are shown in Table 24 below. This analysis still supports the five hypotheses which relate to the more parsimonious five path model (specifically hypotheses H_1, H_4, H_5, H_8 and H_{17}). Furthermore all of the paths were found to be statistically significant (at the 0.001 level) and have a Cohen's (1988) effect size f^2 value which gave a greater indication of either a small or medium effect size.

Path	Unstandardised Regression Estimate	Standardised Regression Estimate	Cohen's F^2	Cohen's F^2 Effect Size Indicator	Hypothesis	Results	Results from Morgan and Hunt (1994a)
Commitment <--- Game Capital	0.298***	0.27	0.08	Small	*H_1: There is a positive relationship between Game Capital and Commitment*	Supported	*Supported a positive relationship between Relationship Termination Costs and Commitment*
Commitment <--- Metagame Benefits	0.295***	0.259	0.07	Small	*H_4: There is a positive relationship between Metagame Benefits and and Commitment*	Supported	*Could not find evidence of a positive relationship between Relationship Benefits and Commitment*
Commitment <--- Past Satisfaction	0.189***	0.172	0.03	Small	*H_5: There is a positive relationship between Past Satisfaction and Commitment*	Supported	*Could not find evidence of a positive relationship between Relationship Benefits and Commitment*
Commitment <--- Current Satisfaction	0.528***	0.404	0.20	Medium	*H_8: There is a positive relationship between Current Satisfaction and Commitment*	Supported	*Not Proposed*
Future Intentions <--- Commitment	0.416***	0.29	0.09	Small	*H_{17}: There is a positive relationship between Commitment and Future Intentions*	Supported	*Supported a positive relationship between Commitment and relationship continuance constructs.*

*Significant at the 0.05 level

** Significant at the 0.01 level

*** Significant at the 0.001 level

Table 24: The Five Path Effect Size Model Findings

As shown by Table 25 below, analysis of goodness of fit measures indicated that the Five Path more parsimonious model fitted the data well. Though the Five Path model had a slightly higher Relative Chi Squared than the Seventeen Path model, it was still within the recommended interpretation tolerances. The Comparative Fit Index, Normed Fit Index and Incremental Fit Index goodness of fit measures actually improved for the five path model reflecting the sensitivity of these measures towards more simplistic explanations and models of a lower size (Kline, 2007, p.144). Furthermore, the Root mean square error of approximation of the Five Path model is slightly higher than the Seventeen Path model's however it is still *"about"* the 0.05 value that Browne and Cudeck (1993) specify.

Goodness of Fit Test	**Thresholds and Interpretation**	**Seventeen Path Relationship model**	**Five Path Relationship model**
Relative Chi Squared	*... different researchers have recommended using ratios as low as 2 or as high as 5 to indicate a reasonable fit.* (Marsh and Hocevar, 1985, p.567)	Relative Chi Squared= 4.636	Relative Chi Squared= 4.878
Comparative Fit Index (CFI)	*In our experience, models with overall fit indices of less than .9 can usually be improved substantially. These indices, and the general hierarchical comparisons described previously, are best understood by examples.* (Bentler and Bonett, 1980, p.600)	CFI= 0.899	CFI= 0.918
Normed fit index (NFI)		NFI= 0.875	NFI= 0.909
Incremental Fit Index (IFI)		IFI= 0.900	IFI= 0.918
Root mean square error of approximation (RMSEA)	*Practical experience has made us feel that a value of the RMSEA of about .05 or less would indicate a close fit of the model in relation to the degrees of freedom.* (Browne and Cudeck, 1993, p.239)	RMSEA= 0.04	RMSEA= 0.06

Table 25: Goodness of Fit Statistics for Five Path Model

Shown in mathematical terms (Box 22) it is clear that Current Satisfaction is a leading predictor of Commitment in the Five Path Model, followed by (in descending order) Game Capital, Metagame Benefits and Past Satisfaction. Significantly the coefficient value of $\boldsymbol{X_C}$ is almost identical in both the

Seventeen and Five Path Models at 0.29, indicating that the 70% reduction in complexity has had no perceivable change in the overall causal interpretation.

$$X_C = 0.27\ X_{gc} + 0.259\ X_{mb} + 0.172\ X_{ps} + 0.404\ X_{cs} + \delta_2$$

$$X_{FI} = 0.29\ X_C + \delta_3$$

Where: X_C= Commitment, X_{gc}=Game Capital, X_{koa}=Knowledge of Alternatives, X_{ps} = Past Satisfaction, X_{cs} = Current Satisfaction ,X_{FI}= Future Intentions, δ_2= Error of Commitment, δ_3= Error of Future Intentions

Box 22: Mathematical Representation of the Significant Paths in the Five Path Model

Finally, the coefficient of determination (squared multiple correlation) of the overall Five Path model was found to be 0.853 (85.3% explanatory power). This compares well to the Seventeen Path model's coefficient of determination of 0.857 (85.7% explanatory power), and is a very strong indication of just how insignificant in terms of effect size many of the Trust-related relationships in the Seventeen Path model are, given that a 70% reduction in the complexity of that model has led to only a 0.4% decrease in the explanatory power.

8.5 Summary of Alternative Models Approach

This study has firstly provided evidence, in keeping with the original approach of Morgan and Hunt (1994a) that a mediating variable model, in which Commitment and Trust are at the centre of the relationship, fits the sample data better than a "Rival Model" which sees the antecedents as equal. The Seventeen Path mediating variable model both displayed better goodness of fit statistics within the accepted interpretations of those statistics while the "Rival Model" did not, and had far superior explanatory power. The Coefficient of Determination for the rival non-mediating variable model only explains 8.6% of the variance of the sample data as compared to the 85.7% explanatory power of the Seventeen Path mediating variable approach.

Secondly, this study has statistically tested the 17 hypotheses drawn from the Commitment Trust Theory literature and has provided evidence to support 11 of these hypotheses. Of those 11 hypotheses supported however it was noted in the analysis that a number of these associations in the path model had an insignificant effect size as measured by the Cohen's f^2 statistic.

Consequently, and thirdly, this chapter, based on the Cohen's f^2 effect size analysis tested a Five Path model based on just the paths found to have a effect size of small or greater. It was found that this five path model both fitted the sample data well and, for a reduction of 70% in complexity lost only 0.4% of its explanatory power, with the omission of the mediating variable of Trust and its antecedents, having little overall affect on modelling the sample data.

8.6 Parsimony

In this study three models have been tested; a Morgan and Hunt "Rival Model", a Seventeen Path Model including all the relevant constructs, and a Five Path effect size model based upon the findings of the Cohen's f^2 effect size indicator. Within Structural Equation Modelling literature, and Marketing Science, there is an emphasis on *"all things being equal, less is more"* (Arbuckle, 2009, p.586). Explanatory models which are simple to understand with fewer parameters are preferred to overly complex explanatory diagrams. If both models, the complex and the simple model, can explain the same event, the question is asked why an *"elaborate pattern of linear dependencies"* (Arbuckle, 2009, p.586) is needed at all, *"…there does not appear to be any disagreement that parsimonious models are preferable to complex ones"* (p.586).

The emphasis of Structural Equation Modelling on the issue of parsimony is in keeping with the philosophy of science (Bentler and Mooijaart, 1989) going back to such concepts as Ockham's razor. As such, of the three explanatory models presented in this study, marketing science, and science in general,

would say that the objective should be to find the one that explains the most in the simplest manner.

The point of testing a Morgan and Hunt "Rival Model" is a re-treading by this study of the original footsteps of Morgan and Hunt (1994a) to show that a mediating variable approach is a valid one and explains more than simple linear regression. This is an approach commonly taken in Commitment Trust Theory to give underlying evidence to reinforce the concept that in placing Commitment and Trust at the heart of the relationship you can explain more than you can by regarding them as merely other antecedents. Morgan and Hunt (1994a) saw their findings as *"critical"* (p.31) to managers and relationship marketing in general as they allow for managers and marketers to understand the process of relationships. Rather than having a *'"laundry list' of antecedents"* (Morgan and Hunt, 1994a, p.32) their aim was to provide managers with better tools with which to understand the development of the relationships they were engaged in.

The Morgan and Hunt comparison "Rival Model" is a key starting point on this line of reasoning. Both this study and Morgan and Hunt's original study tested a model in which all of the antecedents linearly path to the Behavioural Outcome. It was found by this study that this "Rival Model" had a very poor fit for the sample data and was outside all of the established thresholds in Structural Equation Modelling for Model Fit acceptability. In addition this "Rival Model" had very poor explanatory power. When compared to the Seventeen Path Model, which did fit the sample data within acceptable parameters and had substantially better explanatory power the "Rival Model" performed poorly. Consequently, the statistics evidence that the Seventeen Path modelling approach using the two key mediating variables is superior to a simple linear addition of the variables. This implies that a more efficient answer is that Commitment and Trust are the key drivers of Future Subscription intentions.

This study then went further than the original Morgan and Hunt (1994a) study and examined the effect size of the relationships using the Cohen's f^2

statistic to test the strength of the construct associations. From these findings an alternative model was produced which incorporated only those paths which displayed a significant effect size. This alternative Five Path Model was then compared to the Seventeen Path Model. It was found in that comparison that both models were within the boundaries of the goodness of fit statistics and both models displayed similar levels of explanatory power. The Seventeen Path Model displayed very marginally more R^2 explanatory power (around 0.4% more) than the five path model, but the five path model represents a 70% reduction in complexity for that reduction in explanatory power.

There is no threshold or heuristic rule to be applied when considering parsimony; just judgement, reasonableness and logic. The Seventeen Path Model does after all, explain more and as such is a superior model overall. However this study judges that a loss of less than half a percentage point of explanatory power of the data's variance is an acceptable trade-off for a 70% reduction in model complexity. The main aim of this study is to understand the drivers of the long term re-subscription decision in MMO entertainment products so that, like the aims of the original Morgan and Hunt (1994a) study, for managers and researchers a more relevant, contextual, understanding can be reached. Rather than faced with the *"laundry list"* (Morgan and Hunt, 1994a, p.32) of antecedents, and even mediating variables, managers and researchers should be considering those variables which have the greatest association with changes on the future re-subscription intentions of customers.

As such, this study comes to the conclusion that in the data sample taken, for this type of entertainment product, that the main drivers of the re-subscription decision are more efficiently explained by Commitment-Satisfaction than Commitment-Trust. That the Five Path model, and its antecedents of Current Satisfaction, Past Satisfaction, Game Capital and Metagame Benefits that contribute to greater Commitment, leading to greater intention to re-subscribe, is a more efficient explanation. This Five Path model fits the data in a more efficient way than a more complex Seventeen

Path model including Trust and its antecedents. It should be made clear that this is not a rejection of Commitment Trust Theory, nor is it a rejection of the Seventeen Path model found by this study. Thus while this study found statistical support for Hypothesis H_{16} which predicted a positive relationship between Commitment and Trust it is an observation that, from the sample data, a more efficient, elegant, answer is apparent.

8.7 Summary

This chapter discussed the findings of the investigation conducted for this thesis that represents the examination of the fifteen customer decision constructs in the MMO gaming re-subscription setting. This investigation was itself new and relevant in that firstly, it is examining context specific constructs, derived from rigorous application of the Churchill (1979) framework discussed in Chapter Three, which have never been applied or examined in this manner before. Secondly, this research environment itself has never been examined from a customer re-subscription focused Commitment Trust Theory perspective before. Thirdly, effect size has never before been used in Commitment Trust Theory modelling as the basis with which to inform the best practice of comparative modelling.

The chapter first examined the 17 hypotheses presented in Chapter Four, analysing their model fit by firstly comparing a linear additive Morgan and Hunt “Rival Model” with a mediating variable Seventeen Path Model. This comparison indicated that a mediating variable approach modelled the sample data better than a linear additive model. The study then compared the Seventeen Path Model to a Five Path Model which was derived from the paths which displayed significant statistical strength as measured by the Cohen’s f^2 statistic. This comparison showed that the Five Path Model fitted the sample data just as well as the Seventeen Path Model and for a 70% reduction in complexity lost less than half a percentage point in explanatory power as measured by R^2.

These findings give evidence and support for the relevance of the constructs to the context, and provide a rigorous and substantive set of statistical results

for discussion and interpretation. This chapter then moved onto that interpretation, with the focus of the chapter changing from one of communication of results and rigour, to one of examining the theoretical interpretations of this study and their meaning for knowledge creation (Grant, 2003, p.328) This chapter has considered the implications of the findings from this study and presented theoretical interpretations of the statistics presented with a focus on meaning, contributions to knowledge and knowledge creation.

This study has found in the MMO game entertainment context that there is evidence to support the Morgan and Hunt (1994a) Commitment Trust Theory Model. However, there is also evidence to support a refinement of that theory for this context. The strongest association of the antecedents upon Commitment overall was Current Satisfaction and it has been found in the MMO entertainment context that Trust based expectancy has very little effect size in its association with Commitment. In contrast, Past Satisfaction based expectancy, a cruder gratification driven, experience based expectancy, has a much greater statistical association. This leads to the conclusion that long-term MMO gaming relationships are more based on Commitment-Satisfaction than Commitment-Trust.

Trust is not rejected as a concept by this study, and evidence has been presented by this study to support the link between Commitment and Trust presented by Morgan and Hunt (1994a). This study has found though that Commitment-Satisfaction gives a more efficient explanation of the re-subscription decision than that which is given by including Trust and its antecedents. This study suggests that in entertainment based MMO business-to-customer relationships, cruder measures are used by customers to judge their Commitment and Future Intentions than in business-to-business relationships. A business-to-business relationship can be a complex one, usually involving large amounts of time and investment on the part of both parties, and usually based on degrees of trust with the expected outcome a competitive advantage for the businesses involved; satisfaction with the relationship is secondary. In contrast in an MMO entertainment

relationship gratification and product elicited positive affect are at the heart of the relationship, these are the drivers for the customers' expectations, and their investment is, in relative terms, less.

Chapter Nine

Results and Findings

Exploratory Hypotheses

9.1 Introduction

To examine the second research question this study presented in Chapter Four ten exploratory hypotheses regarding the nature of the association of demographic and customer factors upon the Commitment Trust Theory constructs. As these constructs have never before been examined in the MMO gaming subscriber context, and the effect of these variables upon them is unknown and unexplored, a series of null hypotheses which state that the variables have no statistically significant effect upon the constructs is presented. This chapter displays the results of the tests of these.

9.2 Demographic and Situational Hypotheses

Morgan and Hunt's (1994a) Commitment Trust Theory makes no specific hypothesis regarding the effect of contextual, situational or demographic variables upon the constructs presented. Furthermore, as Commitment Trust Theory has never been used to explore the MMO gaming subscriber context before, no current literature exists that gives evidence of the associations between these variables and the constructs. As such the examination of these variables upon the constructs represents an important contribution of this study. A contribution which, it is hoped, will encourage future

researchers to gather further evidence and examine underlying conceptual reasons behind the associations found more fully.

T-tests have been used in this study to examine the effect of the demographic variables of age and gender upon the means of the constructs. Consumer related variables regarding usage and perceptions of expenditure size are also explored. Finally, associations between the constructs and whether a customer has ever participated in opportunistic behaviours and the effect of group play are tested.

Technically, as there are 15 constructs in this study, each hypothesis actually has fifteen separate sub-hypotheses which examine the main hypothesis for each construct (leading to 150 sub-hypotheses). For the sake of transparency and readability though, only the main hypotheses are stated and the outcomes of the tests of the sub-hypotheses are related in both the subsections below and in the summary table at the end of this chapter.

For each hypothesis, this study starts with an initial discussion of the hypothesis followed by the presentation of the findings in a table format. The table gives the results of the findings; the mean difference found by the t-test, the statistical significance of that finding, and the effect size of that finding as measured by Cohen's d (Cohen 1988). This is followed by an explanation of the tabular results which also describes the direction of the differences found. In keeping with good practice, both the statistical significance and the results of the statistical power test are shown. This is even when the Cohen's d test indicates that the finding, though statistically significant, may have little effect. A statistically significant finding which has an insignificant Cohen's d result still provides evidence that H_0, the means are the same, can be rejected. This result though must be taken and interpreted in the context of the effect size. Thus, in the summary findings at the end of this chapter only those findings which were both statistically significant and were found to have a small or greater effect size are reviewed.

9.2.1 Age Hypothesis Results

Though life cycle theories exist which posit the effects of increasing age upon the behavioural habits of consumers, the demographic variable of age upon the Commitment Trust Theory constructs has thus far been unexplored in the MMO gaming subscription environment. The descriptive statistics for the sample data in Table 26 are suggestive of older customers being in relationships or partnerships more than younger customers; however this is far from conclusive evidence that this subsequently has any effect on the re-subscription constructs. These findings do though confirm the evidence of other studies by Yee (2006) and Williams et al. (2008) that the media stereotype of the single nerdy teenager in a darkened room of *"youth subculture"* (Yee, 2006, p.9) is now far from the reality of the modern retail buying market, and the *"old stereotypes of a gamer no longer apply"* (Entertainment Software Association, 2010).

Response	Median Age	N
Single/Divorced/Widower	23	858
Married/Engaged/Living with a Partner	32	580
Other	21	60
Total	***27***	***1498***

Table 26: Relationship Status and Median Age Descriptive Statistics

This study started from the exploratory position of H_{18} positing a null hypothesis which predicts no differences in the constructs whether the customers are younger or older in the sample data. To test this hypothesis the means of the summated construct variables were examined to see if the age of respondents had any significant and powerful effects on the ways in which they answered the questions using a t-test.

The median age of the sample was found to be 27 and this was used as the cut-off point to facilitate analysis examining those respondents below the median age (n=741), and those at or above it (n=757). The results of the

analysis are presented in Appendix I (i to iii) and a summary is presented in the table below.

Construct	***Mean Difference***	***Cohen's d***	***Cohen's Indicator***
Game Capital	-0.295**	0.321	Small
Group Social Benefits	-0.246**	0.211	Small
Trust	-0.328**	0.358	Small
Availability of Game Information	-0.285**	0.317	Small
Customer Service Interactions	-0.158*	0.120	Insignificant
Shared Values with Company	-0.127*	0.114	Insignificant
Future Intentions	0.319*	0.164	Insignificant

* Significant at the 5% Level
** Significant at the 0.1% Level

Table 27: Mean Analysis of Age (n=1498)

Overall it was found that there was some evidence of statistically significant differences (at the $p<0.05$ and $p<0.001$ levels) in the ways in which respondents had responded to the constructs of Game Capital, Group Social Benefits, Shared Values with the Company, Availability of Game Information, Trust and Future Intentions with, in particular, younger customers (customers below the median age of 27) displayed a statistically significant tendency to score higher levels of all of those constructs apart from the Future Intentions construct. The Future Intentions construct in the sample displayed a statistically significant (at the $p<0.05$ level) proportion of older customers (customers at or above the median age of 27) who displayed a higher scoring tendency than younger customers. The effect size of these statistically significant findings though indicates that while they may be significant, the statistical power of these differences is classified as either small or insignificant according to the Cohen's d heuristic decision rule (Cohen, 1988). As such this study limits itself to the conclusion that in the sample data the constructs of Game Capital, Group Social Benefits, Availability of Game Information and Trust for younger customers (age less than 27) shows both a statistically significant (at the $p<0.01$ level) but small

effect size differences in the responses, with these younger customers consistently scoring these constructs higher than older customers.

9.2.2 Gender Hypothesis Results

While psychological and sociological research exists on the differences between male and female MMO computer gamers on issues such as sexuality and social activity, very little exists on their attitudes as customers. It should be noted that, in particular, the success of the Nintendo Wii in being able to attract female gaming customers, means that the role of gender has become an emergent issue in video games research (Yee, 2008; Storgårds and Sokura, 2009). As such, this analysis adds to current developments in this area. Given the lack of a previous examination of the constructs in an MMO online gaming environment to base any predictions upon, this study presents a null hypothesis H_{19} that no difference exists between male (n=1356) and female (n=142) customer's responses and the means of the constructs of Commitment Trust Theory will be the same. The effect of gender on responses was examined using t-tests using the respondent's self designation as the identifying variable. The results of the analysis are presented in Appendix J (i to iii) and a summary is presented in the table below.

Construct	***Mean Difference***	***Cohen's d***	***Cohen's Indicator***
Metagame Benefits	0.405**	0.37	Small
Shared Values with Rules	-0.175*	0.20	Small
Trust	0.161*	0.17	Insignificant

* Significant at the 5% Level
** Significant at the 0.01% Level

Table 28: Mean Analysis of Gender (Male n=1356, Female n=142)

The majority of the constructs displayed no statistically significant differences between male and female respondents. Of the three constructs which did display a difference Metagame Benefits displayed a significant (at the $p<0.001$ level) and small size effect ($d= 0.37$) difference, with males scoring the Metagame Benefits construct consistently higher than females. Two

more constructs, Shared Values and Trust, were found to have statistically significant (at the $p<0.05$ level) differences between males and females. Shared Values with the Rules was consistently scored higher by females than males in the sample and displayed a small effect size. Trust was conversely scored lower amongst female respondents than men. Though both are statistically significant the Trust construct differences displayed very little statistical power with Cohen's d indicating an insignificant effect size.

9.2.3 Time Spent Playing Hypothesis Results

Though much research exists which notes the amount of time MMO customers spend playing their product (Yee, 2006), no research exists exploring the implications of this time spent upon the constructs of Commitment, Trust and the re-subscription decision in the consumer buying behaviour. This analysis thus seeks to provide evidence to support or disconfirm that this as a factor in decision making. As such, this analysis starts from an exploratory position in H_{20} and presents a null hypothesis stating that that no differences in the means of the respondents' answers exists be that if they play only a few hours a week or if they play many hours a week.

The time spent playing sample data was analysed and descriptive statistics for the sample showed a range of answers from one hour a week to 100 hours a week, with the median answer being 20 hours a week. To allow for meaningful interpretation, the usage data was subdivided into quartiles, and the descriptive statistics underpinning this are shown in Appendix K (i). The lower quartile (designated "Light" users) was found to be between one hour and 14 hours a week. The lower middle quartile (designated "Moderate" users) was found to be between 14 and 20 hours per week. The upper middle quartile (designated "Regular" users) was found to be between 21 and 30 hours per week. Finally the upper quartile of the sample data (designated "Heavy" users) was found to be 30 and 100 hours a week. A t-test analysis was used to test the sample means of the lower quartile of the data (n=425) and compare these to the sample means of the upper quartile

of the data (n=345), the rationale being that these two extremes of the dataset would be the ones expected to display the highest levels of any differences if present. The results of the analysis are presented in Appendix K (ii and iii) and a summary is presented in Table 29 below.

Construct	***Mean Difference***	***Cohen's d***	***Cohen's Indicator***
Game Capital	-0.806**	0.83	Large
Metagame Benefits	-0.891**	0.76	Medium
Group Social Benefits	-0.646**	0.70	Medium
Commitment	-0.750**	0.69	Medium
Current Satisfaction	-0.321**	0.34	Small
Past Satisfaction	-0.311**	0.29	Small
Availability of Game Information	-0.263**	0.29	Small
Trust	-0.182*	0.19	Insignificant

* Significant at the 5% Level
** Significant at the 0.1% Level

Table 29: Time Spent Playing Analysis Examining Light (n=425) and Heavy (n=345) Users

In the analysis it was found that there was a statistically significant (at the $p<0.001$ level) and large effect size difference in the scoring of Game Capital between Light users and Heavy users, with Heavy users reporting, on average higher levels of Game Capital. Similarly, there was found to be statistically significant (at the $p<0.001$ level) medium size effect differences in Metagame Benefits, Group Social Benefits and Commitment, with Heavy users consistently scoring these constructs higher than Light users. While there was found to be a statistically significant (at the $p<0.001$ level) difference between Light and Heavy users in their scoring of Current Satisfaction, Past Satisfaction and Availability of Game Information, the overall effect size of this was found to be small. The direction of that difference was consistent with the direction seen before though in that Light users consistently scored these constructs lower than the Heavy users. Finally, there was found to be a statistically significant (at the $p<0.05$ level) difference between how Light and Heavy users scored the Trust construct,

with the direction of the difference again being that Heavy users, on average, scored Trust higher than Light users. The size effect statistic for this difference was found to be insignificant using Cohen's (1988) size effect heuristic rule though.

9.2.4 Number of Different MMOs Played Hypothesis Results

There is no research evidence to suggest that customers who are widely experienced in a number of entertainment MMO products are any different in the re-subscription decisions than a customer who has played either just one game or just a few games. The effect of the number of MMO games a respondent said they had played was thus tested to see if the expected differences could be found within the sample dataset.

The first analysis examined H_{21} to determine if those customers who had only ever played a single MMO (n=368) displayed significant mean differences in their responses when compared than to customers who had played two or more games (n=1316). The results of that analysis are shown in table below and the full analysis can be found in Appendix L (i and ii).

Construct	*Mean Difference*	*Cohen's d*	*Cohen's Indicator*
Knowledge of Alternatives	1.267**	1.09	Large
Current Satisfaction	-0.211**	0.24	Small
Past Satisfaction	-0.225**	0.22	Small
Shared Values with Company	-0.127*	0.11	Insignificant
Shared Values with Rules	0.168*	0.19	Insignificant
Commitment	-0.188*	0.17	Insignificant

* Significant at the 1% Level
** Significant at the 0.1% Level

Table 30: Analysis of Single MMO Game (n=368) and More Than One Game Customers (n=1316)

In the analysis it was found that those customers who had played only one game have a significantly (at the $p<0.001$ level) lower score for the

Knowledge of Alternatives construct than those customers who have played two or more games. Furthermore the effect size of this difference was found to be large (Cohen's d> 0.8) indicating over a standard deviation difference between those who had only played one game and those who had played two or more. Statistically significant (at the p<0.001 level) differences in the mean were also found in the levels of both Current and Past Satisfaction with customers who had played only one game scoring more highly both of these constructs than those who had played two or more games. The effect size of this was found to be small however. Finally, statistically significant (at the p<0.01 level) differences in the means were found in the construct of Shared Values with Company, Shared Values with the Rules and Commitment.

Respondents who had only played one game scored more highly Shared Values with the Company and Commitment than those who had played two or more games. Conversely, those customers who had only played one game scored lower Shared Values with the Rules than those customers who had played more than one game. While statistically significant though, all three of these differences were found to have an insignificant effect size (Cohen's d< 0.2).

In testing Hypothesis H_{22}, which proposed that customers who had a wider experience of MMOs in general could be expected to score lower in the key mediating variables of Commitment and Trust, the sample data was analysed further. The descriptive statistics for the sample showed a range of answers from one game played to eight games played, with the median answer being three games played.

To allow for meaningful interpretation, the usage data was subdivided into the quartiles of the data, and the descriptive statistics underpinning this are shown in Appendix L (iii). A t-test analysis was then used to test if there were any significant differences between those respondents who had answered in the Lower Quartile of the sample dataset with two or fewer MMO games played (n=659), and those who responded in the Upper Quartile of the sample dataset, with five or more MMO games played (n=468). The results

of that analysis are shown in table below and the full analysis can be found in Appendix L (iv and v).

Construct	*Mean Difference*	*Cohen's d*	*Cohen's Indicator*
Knowledge of Alternatives	1.497***	1.33	Large
Current Satisfaction	-0.243***	0.27	Small
Past Satisfaction	-0.232**	0.22	Small
Group Social Benefits	-0.122*	0.14	Insignificant
Shared Values with Company	-0.187**	0.17	Insignificant
Shared Values with Rules	0.131*	0.14	Insignificant
Availability of Game Information	-0.138*	0.15	Insignificant
Trust	-0.145*	0.15	Insignificant
Commitment	-0.211**	0.19	Insignificant

* Significant at the 5% Level
** Significant at the 1% Level
*** Significant at the 0.1% Level

Table 31: Analysis of Lower Quartile (n=659) and Upper Quartile (n=468) of Respondents Regarding Number of MMO Games Played

This additional level of analysis looking at the two ends of the range of the sample data confirms the previous analysis which simply looked at the response difference of having played only one MMO and having played more than one. This further level of analysis also displays a greater size effect between the lower quartile and upper quartile means of the sample data on the construct Knowledge of Alternatives. A number of other constructs in this further analysis did display statistically significant differences, however they all also displayed an insignificant effect size as measured by the Cohen's d statistic.

9.2.5 Game Played Hypothesis Results

Of the respondents to the online survey, 29.6% (n= 596) played the product Eve Online as their main game, and 57.3% (n=1155) played the product World of Warcraft as their main game with the majority of the full survey completions in the sample data (86.9%) regarding just these two games. A t-

test analysis testing the means of these two largest subsections of the sample population for differences was conducted for the purposes of examining H_{23} which proposed no differences in the respondents based on game played. The results of that analysis are shown in the table below and the full analysis can be found in Appendix M (i and ii).

Construct	***Mean Difference***	***Cohen's d***	***Cohen's Indicator***
Game Capital	-0.56***	0.62	Medium
Availability of Game information	-0.60***	0.72	Medium
Knowledge of Alternatives	-0.29***	0.23	Small
Opportunistic Behaviour	-0.36***	0.22	Small
Trust	-0.29***	0.33	Small
Commitment	0.36***	0.35	Small
Future Intentions	0.49***	0.25	Small
Group Social Benefits	-0.18***	0.20	Small
Perceptions of Game Developers'	0.19*	0.14	Insignificant
Metagame Benefits	0.16**	0.15	Insignificant
Current Satisfaction	0.13**	0.15	Insignificant

* Significant at the 5% Level
** Significant at the 1% Level
*** Significant at the 0.1% Level

Table 32: Mean Analysis of Eve Online and World of Warcraft Customer Responses

It was found that the response means for Game Capital and Availability of Game Information for the Eve Online customers and World of Warcraft customers were significantly different (at the 0.1% level) and that difference had a medium size effect, with the Eve Online customers responding consistently lower levels of Game Capital and displaying consistently lower levels of Availability of Game Information than the World of Warcraft customers. The Eve Online customers also displayed significantly (at the 0.1% level) lower levels of Knowledge of Alternatives, Opportunistic Behaviour, Trust and Group Social Benefits when compared to the means of World of Warcraft customers. These differences were found to have a small effect size using the Cohen's d (Cohen, 1988) scale. Conversely, the means

of the Commitment and Future Intentions were found to be significantly (at the 0.1% level) higher amongst Eve Online Customers than World of Warcraft Customers, and this again was found to have a low effect size. Some statistically significant differences (at the 1% and 5% level) were also found in the means of the Perceptions of Game Developers', Metagame Benefits and Current Satisfaction constructs. However, the Cohen's d indicator denoted these as insignificant in their effect size.

9.2.6 Length of Time Spent Playing MMOs Hypothesis Results

This study set out in the literature review the null hypothesis H_{24} that the amount of time the respondent had played MMO games had no effect on the means of the constructs, with an alternative hypothesis that there was a difference. As Appendix N (i) shows, the respondents ranged from new customers who had been playing only a month, to gaming veterans who had been playing for nearly ten years. The median number of years spent playing MMOs was found to be three years and two months, with the lower quartile of the sample data being those customers who had played MMOs for two years or less and the upper quartile of the data those who had played for four years and two months or more. To test this hypothesis a t-test was conducted to examine the data for possible differences between the lower quartile of the respondents (n=457) and the upper quartile of the respondents (n=452). The results of that analysis are shown in table below and the full analysis can be found in Appendix N (ii and iii).

Construct	*Mean Difference*	*Cohen's d*	*Cohen's Indicator*
Game Capital	-0.79***	0.85	Large
Availability of Game Information	-0.32***	0.34	Small
Knowledge of Alternatives	-0.38***	0.30	Small
Trust	-0.27***	0.28	Small
Commitment	-0.23**	0.21	Small
Group Social Benefits	-0.24***	0.29	Small
Shared Values with Company	-0.234***	0.21	Small
Metagame Benefits	-0.16*	0.15	Insignificant

* Significant at the 5% Level
** Significant at the 1% Level
*** Significant at the 0.1% Level

Table 33: Mean Analysis of Lower Quartile and Upper Quartile of Years Playing MMOs

The analysis found that the construct of Game Capital displayed a statistically significant (at the 0.1% level) and large size effect (Cohen's d= 0.85) difference between those customers in the lower quartile and those in the upper quartile. Customers who had played MMO's for longer consistently scored the construct of Game Capital higher than those who had played MMOs for less time. Similarly, respondents in the upper quartile scored the constructs of Availability of Game information, Knowledge of Alternatives, Trust, Commitment, Group Social Benefits and Shared Values with Company higher than those respondents in the lower quartile. These differences were found to be statistically significant at the 0.1% and 1% levels, however the size effect of these differences was found to be small. The Metagame Benefits construct was also found to have statistically significant (at the 5% level) differences between the upper and lower quartiles, with the upper quartile scoring this construct consistently higher than the lower quartile. However, the small Cohen's d statistic for this finding indicates that the statistical power of this result is so small as to make it insignificant.

9.2.7 Perceived Cost Hypothesis Results

This study presented the null hypothesis H_{25} that the means of the constructs of the respondents who perceived the cost of their subscription as inconsequential is the same as those who perceive it to be noticeable in their monthly expenditures. The size of the cost of the subscription to the respondent was measured by a reflective Likert scale item. The seven point Likert scale item asked respondents to reflect on, in the context of their monthly earnings and spending, the statement "The cost of my gaming subscription is so small I hardly notice it" anchored with Strongly Disagree/Strongly Agree. The responses to Likert scale item was then used to categorise the respondents into those who agreed (n=1171) and those who disagreed with the statement (n=257), with frequency descriptive shown in Appendix O (i). A t-test was then used to analyse the two categories and the results of that analysis are shown in table below.

Construct	***Mean Difference***	***Cohen's d***	***Cohen's Indicator***
Game Capital	-0.28***	0.30	Small
Past Satisfaction	-0.34***	0.33	Small
Shared Values with Company	-0.36***	0.33	Small
Availability of Game Information	-0.26***	0.29	Small
Perceptions of Game Developers'	-0.33***	0.24	Small
Trust	-0.27***	0.30	Small
Commitment	-0.32***	0.30	Small
Current Satisfaction	-0.28***	0.32	Small
Shared Values with Rules	-0.18**	0.20	Small
Knowledge of Alternatives	-0.18*	0.14	Insignificant
Group Social Benefits	-0.15*	0.18	Insignificant
Customer Service Interactions	-0.18*	0.14	Insignificant
Future Intentions	-0.27*	0.14	Insignificant

* Significant at the 5% Level
** Significant at the 1% Level
*** Significant at the 0.1% Level

Table 34: Mean Analysis of Perceived Cost

It was found that statistically significant differences (at the 1% and 0.1% level) occurred in 13 of the 16 constructs, with the direction of the difference being consistently the same. For each of the constructs the respondents who perceived the ongoing cost of the subscription to be negligible on average scored the construct higher than the respondents who did not perceive the cost as such. Of those significant differences only nine displayed a noteworthy statistical power however, and in those nine the statistical power was small.

Response	Median Age	N
Perceived Cost as non-Negligible	24	257
Perceived Cost as Negligible	27	1171
Median Age of All Respondents	***27***	***1428***

Table 35: Perceived Cost and Median Age Descriptive Statistics

Furthermore, the sample data for the descriptive statistics (in Table 35 above) showed that the overall median age of the respondents who perceived the cost of their subscription as high was noticeably lower. A Chi Squared test found evidence to reject the notion that age is independent of the perceptions of cost at the 0.05 level (X_2= 65.83, p= 0.029). This result suggests that the analysis of perceived cost effects may be multi-faceted and that both H_{18} and H_{25} should be interpreted together rather than separately.

9.2.8 Used "Gold Farming" Services Hypothesis Results

Hypothesis H_{26} examines self reported activity in the purchase of third party services and predicts in its null hypothesis that there is no statistical difference between those who have and those who have not used third party services. In this study the number of people who reported using third party services is small (n=262) but noteworthy with it constituting 16.7% of the 1,572 responses to this question. Customers of the two products Eve Online (CCP Studios) and World Of Warcraft (Blizzard Activision) constituted the bulk (89%) of the respondents as shown below in Table 36 below.

Game Product	Used Gold Services	Not Used Gold Services	Total	Percentage
Eve Online	61	430	491	*12.4%*
World of Warcraft	167	743	910	*18.4%*
Other Games	34	137	171	*19.9%*
All	262	1310	1572	*16.7%*

Table 36: Descriptive Statistics of Users of Third Party Services by Game Product Played

Before testing Hypothesis H_{26} a simple Chi Squared test was run using the Crosstabs function of SPSS on the groupings. The Chi Squared test examined the null hypothesis that the row and columns (in Table 36 above) are independent of each other. In other words, that there is no association between the game played and using third party services. This analysis found evidence at the 0.01 level to reject the notion that the use of gold services is independent of the game product played (X_2= 39.02, p= 0.002).

To test Hypothesis H_{26} a t-test was conducted to examine the data for possible differences between those who had used third party services and those who had not. Due to the findings of the Chi Squared analysis just discussed this was done in two stages. First the means of the products Eve Online and World of Warcraft were separately tested using a t-test of Hypothesis H_{26} and then all of the respondents were analysed. The results of that analysis are shown in Table 37 overleaf and the full analysis can be found in Appendix P (ii).

Construct	All Respondents (n=1572)			World of Warcraft Customers (n=910)			Eve Online Customers (n=491)		
	Mean Difference	Cohen's d	Cohen's Indicator	Mean Difference	Cohen's d	Cohen's Indicator	Mean Difference	Cohen's d	Cohen's Indicator
Opportunistic Behaviour	1.64***	1.04	Large	1.76***	1.08	Large	1.34***	0.96	Large
Shared Values with Rules	-0.23***	0.26	Small	n/s			-0.52***	0.59	Medium
Knowledge of Alternatives	0.34***	0.27	Small	0.29**	0.23	Small	0.42*	0.35	Small
Game Capital	0.20**	0.21	Small	n/s			n/s		
Availability of Game Information	n/s			n/s			-0.29*	0.29	Small
Customer Service Interactions	n/s			n/s			-0.46*	0.34	Small
Commitment	n/s			n/s			0.29*	0.33	Small
Future Intentions	n/s			n/s			0.59*	0.33	Small
Metagame Benefits	0.15*	0.14	Insignificant	n/s			0.26*	0.27	Small
Group Social Benefits	0.14*	0.17	Insignificant	n/s			n/s		

* Significant at the 5% Level

** Significant at the 1% Level

*** Significant at the 0.1% Level

Table 37: Mean Analysis of Users of Third Party Services and Non-Users

The analysis of All Respondents (n=1572) found statistically significant differences, which displayed a significant statistical power, in four of the constructs: Opportunistic Behaviour, Shared Values with Rules, Knowledge of Alternatives and Game Capital. A further two statistically significant differences were found in Metagame Benefits and Group Social Benefits, but these had an insignificant statistical power. Of the responses by All Respondents those who had used third party services displayed a more flexible attitude towards such services and Opportunistic Behaviours in general (at the 0.1% level, Cohen's d=1.04, Large size effect) scoring this construct higher than non-users. These same respondents also had less affinity with the rules of the game they played (at the 0.1% level, Cohen's d=0.26, Small size effect). Respondents who had used third party services also displayed higher levels of the Game Capital construct (at the 1% level, Cohen's d=0.21, Small size effect) than non-users. Finally those customers who had used third party services displayed a greater Knowledge of Alternative MMO products (at the 0.1% level, Cohen's d=0.27, Small size effect) than those who had not used such services.

The analysis of just the World of Warcraft (Blizzard Activision) customers (n=910) found statistically significant differences, which displayed a statistical power in two of the constructs; Opportunistic Behaviour and Knowledge of Alternatives. In both cases, like the findings of examining All Respondents (n=1572), the examination of just the World of Warcraft customers (n=910) found that those customers who had used third party services displayed a greater flexibility in their attitude towards Opportunistic Behaviours (at the 0.1% level, Cohen's d=1.08, Large size effect) when compared to those who had not. Furthermore and similarly, those who had used third party services displayed a greater Knowledge of Alterative MMO products (at the 1% level, Cohen's d=0.23, Small size effect) than those who had not.

Of all three analyses, the examination of the Eve Online customers (n=491) displayed the largest number of statistical changes with eight of the constructs evidencing mean differences which displayed a significant statistical power. Of these Opportunistic Behaviours displayed a large effect

size with those who had used third party services scoring this construct more highly than those who had not. Furthermore those same customers who had used third party services had less affinity with the game product rules (at the 0.1% level, Cohen's d=0.59, Medium size effect) than those who hadn't used such services. For the Eve Online customers who had used third party services the six constructs of Knowledge of Alternatives, Commitment, Future Intentions and Metagame Benefits all displayed a statistically significant, small effect size, mean difference with those who had used third part services ranking them higher than those who had not. Two further constructs of Customer Service Interactions and Availability of Game Information were ranked lower by the Eve Online Customers who had used third party services (when compared to those who had not) and these both also displayed a small effect size.

9.2.9 Group Play Hypothesis Results

While MMO Products are, by the definition of MMO, massively multiplayer, there is in most game products no actual necessity to engage in group play. Indeed, a customer is capable of playing the majority of the content in most premium MMO products without even engaging another customer in conversation. Conversely, these products are socially orientated, with at the heart of the product experience there being an important customer in-game grouping. As Table 38 below shows, in the sample data for this study it was found that the majority of respondents (77.7%) were in groups.

Game Product	Currently in a Group	Not Currently in a Group	Total	Percentage
Eve Online	429	128	557	*77.0%*
World of Warcraft	863	196	1059	*81.5%*
Other Games	124	82	206	*60.2%*
	1416	406	1822	*77.7%*

Table 38: Descriptive Statistics of Customers in Groups by Game Product

Though it is well documented anecdotally in MMO design literature that getting players into groups is essential, no empirical evidence to date has ever drawn a direct association between being in an in-game group and increased future re-subscription intentions on the part of the customer. As such, this study starts with the null hypothesis in H_{27} that there is no statistical difference in the means of the constructs between those customers who are part of a group, and those who are not. A t-test was conducted to examine this Hypothesis H_{27}. The results of the analysis of which is shown in the table below and the full analysis of can be found in Appendix Q (i, ii and iii).

Construct	***Mean Difference***	***Cohen's d***	***Cohen's Indicator***
Game Capital	-0.821**	0.910	Large
Metagame Benefits	-0.389**	0.350	Small
Past Satisfaction	-0.461**	0.450	Small
Shared Values with Company	-0.226*	0.203	Small
Availability of Game Information	-0.239**	0.261	Small
Trust	-0.190*	0.204	Small
Commitment	-0.459**	0.432	Small
Current Satisfaction	-0.318**	0.359	Small
Future Intentions	-0.487**	0.251	Small

* Significant at the 1% Level
** Significant at the 0.1% Level

Table 39: Mean Analysis of Customers Who Play in a Group and Those Who Do Not

The analysis of customers found that nine of the constructs displayed statistically significant differences in the mean. The direction of this association was regular across all the constructs. On average the customer who was in an in-game grouping consistently scored the nine constructs higher than the customer who was not. Of the constructs Game Capital displayed the largest statistical power (Cohen's d=0.91, Large effect size) in its association, with the associations of the other eight constructs all displaying a small statistical power.

9.3 Summary of Results

Over the next five pages the results of the analysis of the customer and demographic variables is presented in Table 40, with the hypothesis being tested as the column heading and the construct tested as the row. Only those outcomes which displayed both a statistically significant association and non-insignificant statistical power are shown.

	Age	***Gender***	***Hours played***	***N^{o} of MMO's Played***	
Hypothesis	*H_{18}: The mean of the responses to the constructs for the older customers will be the same as the younger customers.*	*H_{19}: The mean of the responses to the constructs for the males will be the same as the females.*	*H_{20}: The mean of the responses to the constructs for the customers who play a high number of hours will be the same as the customers who play a low number of hours.*	*H_{21}: The mean of the responses to the constructs for the customers who have played only one MMO will be the same as the customers who have played more than one MMO.*	*H_{22}: The mean of the responses to the constructs for the customers who have played a low number of MMOs will be the same as the customers who have played a high number of MMOs*
Construct					
Game Capital	*Diff.= -0.295** Cohen's d= 0.321 Small Effect Size*		*Diff.= -0.806** Cohen's d= 0.83 Large Effect Size*		
Knowledge of Alternatives				*Diff.= 1.267** Cohen's d= 1.09 Large Effect Size*	*Diff.= 1.497*** Cohen's d= 1.33 Large Effect Size*
Metagame Benefits		*Diff.= 0.405** Cohen's d= 0.37 Small Effect Size*	*Diff.= -0.891** Cohen's d= 0.76 Medium Effect Size*		
Group Social Benefits	*Diff.= -0.246** Cohen's d= 0.211 Small Effect Size*		*Diff.= -0.646** Cohen's d= 0.70 Medium Effect Size*		
Past Satisfaction			*Diff.= -0.311** Cohen's d= 0.29 Small Effect Size*	*Diff.= -0.225** Cohen's d= 0.22 Small Effect Size*	*Diff.= -0.232** Cohen's d= 0.22 Small Effect Size*

* Significant at the 5% Level

** Significant at the 1% Level

*** Significant at the 0.1% Level

Table 40: Summary of Customer and Demographic Variable Analysis

	Age	***Gender***	***Hours played***	***N^{o} of MMO's Played***	
Hypothesis	*H_{18}: The mean of the responses to the constructs for the older customers will be the same as the younger customers.*	*H_{19}: The mean of the responses to the constructs for the males will be the same as the females.*	*H_{20}: The mean of the responses to the constructs for the customers who play a high number of hours will be the same as the customers who play a low number of hours.*	*H_{21}: The mean of the responses to the constructs for the customers who have played only one MMO will be the same as the customers who have played more than one MMO.*	*H_{22}: The mean of the responses to the constructs for the customers who have played a low number of MMOs will be the same as the customers who have played a high number of MMOs*
Construct					
Shared Values with Rules		*Diff.= -0.175** *Cohen's d= 0.20* *Small Effect Size*			
Availability of Game Information	*Diff.= -0.285*** *Cohen's d= 0.317* *Small Effect Size*		*Diff.= -0.263*** *Cohen's d= 0.29* *Small Effect Size*		
Trust	*Diff.= -0.328*** *Cohen's d= 0.358* *Small Effect Size*				
Commitment			*Diff.= -0.750*** *Cohen's d= 0.69* *Medium Effect Size*		
Current Satisfaction			*Diff.= -0.321*** *Cohen's d= 0.34* *Small Effect Size*	*Diff.= -0.211*** *Cohen's d= 0.24* *Small Effect Size*	*Diff.= -0.243*** *Cohen's d= 0.27* *Small Effect Size*

* Significant at the 5% Level

** Significant at the 1% Level

*** Significant at the 0.1% Level

Table 40: Summary of Customer and Demographic Variable Analysis (Cont.)

	Game Played	**Length of Time Spent Playing MMO's**	**Perceived Cost**	**Used "Gold Farming" Services**	**Group Play**
Hypothesis	*H_{23}: The mean of the responses to the constructs for the customers play one product will be the same as the customers who play a different product.*	*H_{24}: The mean of the responses to the constructs for the customers who have played a low amount of time will be the same as the customers who have played a large amount of time*	*H_{25}: The means of the constructs of the respondents who perceived the cost of their subscription as inconsequential is the same as those who perceive it to be noticeable in their monthly expenditures.*	*H_{26}: The means of the constructs of the respondents who have used "Gold farming" services will be the same as those who have not.*	*H_{27}: The means of the constructs of the respondents who play in groups will be the same as those who do not*
Construct					
Game Capital	Diff.= -0.56*** Cohens d= 0.62 Medium Effect Size	Diff.= -0.79*** Cohens d= 0.85 Large Effect Size	Diff.= -0.28*** Cohens d= 0.30 Small Effect Size	Diff.= 0.20** Cohens d= 0.21 Small Effect Size	Diff.= -0.82*** Cohens d= 0.91 Large Effect Size
Knowledge of Alternatives	Diff.= -0.29*** Cohens d= 0.23 Small Effect Size	Diff.= -0.38*** Cohens d= 0.30 Small Effect Size		Diff.= 0.34*** Cohens d= 0.27 Small Effect Size	
Metagame Benefits					Diff.= -0.389*** Cohens d= 0.35 Small Effect Size
Group Social Benefits	Diff.= -0.18*** Cohens d= 0.20 Small Effect Size	Diff.= -0.24*** Cohens d= 0.29 Small Effect Size			
Past Satisfaction			Diff.= -0.34*** Cohens d= 0.33 Small Effect Size		Diff.= -0.461*** Cohens d= 0.45 Small Effect Size

* Significant at the 5% Level

** Significant at the 1% Level

*** Significant at the 0.1% Level

Table 40: Summary of Customer and Demographic Variable Analysis (Cont.)

	Game Played	Length of Time Spent Playing MMOs	Perceived Cost	Used "Gold Farming" Services (All Respondents)	Group Play
Hypothesis	*H_{23}: The mean of the responses to the constructs for the customers play one product will be the same as the customers who play a different product.*	*H_{24}: The mean of the responses to the constructs for the customers who have played a low amount of time will be the same as the customers who have played a large amount of time.*	*H_{25}: The means of the constructs of the respondents who perceived the cost of their subscription as inconsequential is the same as those who perceive it to be noticeable in their monthly expenditures.*	*H_{26}: The means of the constructs of the respondents who have used "Gold farming" services will be the same as those who have not.*	*H_{27}: The means of the constructs of the respondents who play in groups will be the same as those who do not.*
Construct					
Shared Values with Company		Diff.= -0.234*** Cohen's d= 0.21 Small Effect Size	Diff.= -0.36*** Cohen's d= 0.33 Small Effect Size		Diff.= -0.225** Cohen's d= 0.20 Small Effect Size
Shared Values with Rules			Diff.= -0.18** Cohen's d= 0.20 Small Effect Size	Diff.= -0.23*** Cohen's d= 0.26 Small Effect Size	
Availability of Game information	Diff.= -0.60*** Cohen's d= 0.72 Medium Effect Size	Diff.= -0.32*** Cohen's d= 0.34 Small Effect Size	Diff.= -0.26*** Cohen's d= 0.29 Small Effect Size		Diff.= -0.239*** Cohen's d= 0.26 Small Effect Size
Perceptions of Game Developers'			Diff.= -0.33*** Cohen's d= 0.24 Small Effect Size		

* Significant at the 5% Level

** Significant at the 1% Level

*** Significant at the 0.1% Level

Table 40: Summary of Customer and Demographic Variable Analysis (Cont.)

	Game Played	**Length of Time Spent Playing MMOs**	**Perceived Cost**	**Used "Gold Farming" Services (All Respondents)**	**Group Play**
Hypothesis	*H_{23}: The mean of the responses to the constructs for the customers who play one product will be the same as the customers who play a different product.*	*H_{24}: The mean of the responses to the constructs for the customers who have played a low amount of time will be the same as the customers who have played a large amount of time.*	*H_{25}: The means of the constructs of the respondents who perceived the cost of their subscription as inconsequential is the same as those who perceive it to be noticeable in their monthly expenditures.*	*H_{26}: The means of the constructs of the respondents who have used "gold farming" services will be the same as those who have not.*	*H_{27}: The means of the constructs of the respondents who play in groups will be the same as those who do not.*
Construct					
Opportunistic Behaviour	Diff.= -0.36*** Cohen's d= 0.22 Small Effect Size			Diff.= -1.64*** Cohen's d= 1.04 Large Effect Size	
Trust	Diff.= -0.29*** Cohen's d= 0.33 Small Effect Size	Diff.= -0.27*** Cohen's d= 0.28 Small Effect Size	Diff.= -0.27*** Cohen's d= 0.30 Small Effect Size		Diff.= -0.19** Cohen's d= 0.20 Small Effect Size
Commitment	Diff.= -0.36*** Cohen's d= 0.35 Small Effect Size	Diff.= -0.23** Cohen's d= 0.21 Small Effect Size	Diff.= -0.32*** Cohen's d= 0.30 Small Effect Size		Diff.= -0.459*** Cohen's d= 0.43 Small Effect Size
Current Satisfaction			Diff.= -0.28*** Cohen's d= 0.32 Small Effect Size		Diff.= -0.318*** Cohen's d= 0.36 Small Effect Size
Future Intentions	Diff.= -0.49*** Cohen's d= 0.25 Small Effect Size				Diff.= -0.487*** Cohen's d= 0.25 Small Effect Size

* Significant at the 5% Level
** Significant at the 1% Level
*** Significant at the 0.1% Level

Table 40: Summary of Customer and Demographic Variable Analysis (Cont.)

9.4 Summary

The chapter tested the ten hypotheses presented in Chapter Four regarding the influence of customer and demographic factors upon the constructs. As this examination was exploratory, to inform future research, this study presented in Chapter Four a series of null hypotheses stating that there would be no change in the mean value of the construct when the data was differentiated using the factors.

In addressing the second research question it was found that a number of the constructs displayed statistically significant differences when particular factors were tested, which provided statistical evidence for a number of the constructs to reject the null hypothesis and accept the simple alternative hypothesis that there was a change.

In the next chapter this study binds together the threads of the results of this chapter and Chapter Eight by discussing both the importance and the effect of both the confirmatory and exploratory tests upon the constructs detailed in Chapter Three. This discussion, in combination with the results in this chapter, forms this study's examination of the second research question.

Chapter Ten

Combinations of Psychological Outcomes and Discussion of Constructs

10.1 Introduction

This chapter addresses the second and third research questions by firstly analysing the interaction of the key relationship variables in relationship continuance using Gruen's (1995) interaction framework. This chapter draws conclusions as to the plausible relationship outcomes and the effect that these will have upon the ongoing quality of the relationship.

Then secondly, building on that discussion, this chapter considers the constructs defined in Chapter Three in a discussion of the implications of the statistical findings. This chapter presents a synthesis of the evidence found in Chapters Eight and Nine to analyse the constructs presented. As Commitment Trust is a nomologically based theory, the constructs are the key components upon which the causal assumptions for modelling rest. Consequently, it is appropriate that these constructs are assessed for both their relevance and their overall effect.

10.2 Combinations of Psychological Outcomes

In Gruen's (1995) adaptation to the Commitment Trust Theory the proposal was made that, *"…a valuable way to examine relationships is to consider high versus low levels of each of the three psychological constructs."* (Gruen, 1995, p.463). The propensity to terminate a relationship (in this case, a subscription) is directly linked to Commitment by Commitment Trust Theory literature (Gruen, 1995). Though such constructs as Trust and Satisfaction can positively affect Commitment, it is possible to have Commitment and low termination intentions without either, though such a relationship was characterised by Gruen (1995) as a *"lousy relationship"* (p.464).

Furthermore it is possible to have a *"frustrating relationship"* (Gruen, 1995, p.464) in which Commitment and Trust are strong, but Satisfaction is weak. More simplistically, it is possible for a relationship to continue onwards even during those periods of a relationship in which it should otherwise fail through the mediating effects of the three constructs of Commitment, Satisfaction and Trust.

This study makes no claims or inferences regarding the initial purchase decision, but that initial period, and the interactions of Commitment, Trust and Satisfaction in that period, are still important to understand. As Table 41 below shows, initially it is expected that a customer buying a new product is driven by Trust based expectancy, and (hopefully perhaps, on the part of the company) finds satisfaction with his new purchase and overall Commitment is initally low. This would be a *"promising"* (Gruen, 1995, p.464) start to a product relationship in which initially the propensity to leave would be high, but it would be expected to decrease (-) over time.

Construct Combinations:			Indicates a:	
Cmt	***Sat.***	***Trust***		***Propensity to Terminate***
High	Low	Low	Lousy Relationship	Low (+)
High	Low	High	Frustrating Relationship	Low (0)
High	High	Low	Good Relationship	Low (0)
High	High	High	Best Relationship	Low (-)
Low	Low	Low	Weakest Relationship	High(+)
Low	Low	High	Unfortunate Relationship	High(0)
Low	High	Low	Promiscuous Relationship	High(0)
Low	High	High	Promising Relationship	High(-)

Table 41: Gruen's (1995) Combination of Mediating Constructs

Alternatively, in the initial stages a customer could be motivated by brand loyalty to buy the product, but find the product doesn't satisfy their needs and thus they have little Commitment to maintaining the relationship, an *"unfortunate relationship"* (Gruen, 1995, p.464) (High Trust, Low Satisfaction, Low Commitment). This would mean a high propensity to leave, but one which is neither positively or negatively directional (0) due to expectancy influence of Trust, for example the customer may expect things to get better. Of course, if it doesn't get better Trust itself would be expected to decrease.

Two more types of initial relationships are expected. Customers could very much enjoy the product (High Satisfaction), but still have little attachment to it (Low Commitment) and not have very high Trust of that same product delivering the same levels of satisfaction and thus they could be *"promiscuous"* (Gruen, 1995, p.464) customers. Finally, customers who have little expectancy (Low Trust) may buy the product (perhaps as an impulse buy) and find that the product delivers little in the way of enjoyment (Low Satisfaction) and thus has little in the way of intentions of staying with the product (Low Commitment) with this being the *"weakest"* (Gruen, 1995, p.464) relationship type.

The point for this discussion in this study (which is focused on the longer term nature of the relationship) of understanding the initial stages is that these initial stages develop over time. As they develop and as the customer doesn't terminate the relationship, Commitment becomes more important. A promising customer who becomes committed would be in an ideal relationship with all three constructs high. A promiscuous customer may find that other games do not deliver the same levels of satisfaction and thus becomes more committed to the game which does deliver that satisfaction (and thus maybe develops more product Trust as well). An unfortunate relationship or the weakest type of relationship will either leave for pastures new, thus introducing Survival Bias, an overarching limitation of all current Commitment Trust Theory research. Or alternatively customers will find a part of the game they enjoy (Satisfaction increases) and then the relationship develops from there (possibly still as a promiscuous one).

The point being that in the long term Commitment starts to develop. Commitment isn't an initial concept, it is the consequence of Trust and Satisfaction and other antecedent drivers; the psychological outcome. In this longer term relationship however, this study has found that statistically Trust has very little power in its association to Commitment. This is not to say Trust is un-important, but more that the expectancy function of Trust has been confirmed by long term realisation of experienced Satisfaction.

If thus, levels of Trust have little effect on the relationship in the longer term, what is the effect? If Trust is un-important, logically Gruen's (1995) *"best relationship"* and *"good relationship"* (p.464) are identical. This though poses no real issues as in both cases the Propensity to Terminate the Relationship is either low and decreasing (-) or low and static (0). It is at the other end of the scale that issues arise in the lousy and frustrating relationships, which are both high Commitment and low Satisfaction. If Trust is un-important this implies that the mitigating power of expectancy of benevolence or better things, in a long term relationship, has little effect. Customers in what would be in a frustrating relationship (if Trust was effective) logically are thus simply

in a lousy relationship (-) and more likely to leave. This finding implies that, from the sample data and the rationale presented, MMO customers are ones who can be expected to be more extreme and volatile in their reactions. Perhaps due to the entertainment nature of the product itself, they are unlikely to stick around in a frustrating relationship for very long, as a frustrating relationship in an entertainment product context is simply a lousy one which is unlikely to continue.

10.3 Discussion of Mediating Variables

10.3.1 Trust

In this study Trust is seen to build levels of benevolence expectancy in a product and relationship, it builds assumptions of norms and values which are confirmed or dis-confirmed by the customer's subsequent realised experience of that product and relationship. In the Commitment Trust Theory Model the construct of Trust is seen as a mediating variable which links the Trust Antecedents with Commitment, and thus, Future Intentions. Trust is multi-faceted and the approach of Morgan and Hunt (1994a) was, rather than try and understand the dimensions of Trust, to examine the implications of the outcomes of Trust. Thus the question posed is "do you trust?" rather than "why do you trust?".

This study found that in the sample data there was a statistically significant association between Trust and Commitment as Morgan and Hunt (1994a) predicted. However, the statistical power of the association was very weak, with the Cohen's f^2 of the association indicating an insignificant effect size. Consequently, this study does not view Trust as irrelevant to MMO game companies in their relationship with their customers, instead it is evidenced as un-important and it adds little to the overall predictive power of the nomological model.

Marriage and personal relationships are an often used metaphor in Commitment Trust Theory. To use this metaphor, what this study is examining is the relationship after the initial meeting in a night-club, after a

few months of courtship, after the wedding and after a couple of years of marriage. This study is looking at long term MMO subscribers and their re-subscription decisions, it may be, that by the point at which this marriage has gone on for a few years Trust is an assumed value, a level of Trust has been set in the relationship, and thus Trust itself as a measurable construct becomes less important (because Trust is now implicit in the relationship).

As such, Trust, which may initially be very important, may have reached a comfortable plateau in which it would take a critical event, or a series of critical events, to disrupt the implied assumptions the customer has in the relationship. Thus Trust could be far from un-important, it may just be that within the sample data of MMO subscribers (who, on average, had subscribed for three years and two months) that Trust had already been long established, and like a long married couple, that Trust was just assumed, with Relationship Commitment and Satisfaction being more relevant constructs. Trust may be also far from irrelevant for a business when looking at future relationships. This study has found in one particular relationship between a customer and the business in their MMO subscription for one particular product that Trust has little evidence of effect size. That is not to say that future relationships for future products are included in this finding.

10.3.2 Commitment

Commitment in Commitment Trust Theory is a desire to maintain the relationship or membership. Commitment is seen as the motivational force behind the behavioural action of maintaining the relationship, even when faced with episodes or critical incidents which may impact on Trust and Satisfaction (Scholl, 1981). The implicit assumption of Commitment Trust Theory being that the psychological outcome of Commitment translates into eventual behavioural outcomes on the part of the relationship partner.

This study's adaptation of Commitment Trust Theory to the business-to-customer market tested the importance of Commitment in Hypothesis H_{17}. This predicted a positive relationship between Commitment and Future

Intentions to re-subscribe. Importantly, Trust in the nomological model adds to Commitment, but itself had no path to Future Intentions to re-subscribe so whilst Trust is relevant, Commitment becomes the most important construct when considering the relationship maintenance in the long term business-to-customer relationship domain.

This study found a statistically significant association between Commitment and Future Intentions to re-subscribe which displayed a significant statistical power (Hypothesis H_{17}). Furthermore in the tests of customer and demographic variables more hours played (H_{20}), the game product played (H_{23}), the a high amount of years playing (H_{24}), negligible Perceived Cost of the subscription (H_{25}) and playing in a group (H_{27}) were all factors which displayed higher mean levels of Commitment. From the customer and demographic hypotheses this study notes that the factors of playing more hours, being a MMO gaming customer who has played MMOs for more than the average three years two months are associated with stronger levels of Commitment. This leads to the implication that for managers and marketeers who are launching new products may find it difficult to interest these types of customers in alternative products, due to their higher current Commitment levels to their current product.

The finding of Hypothesis H_{23} that Eve Online customers are more committed than World of Warcraft customers is difficult to interpret. CCP Studio's product EVE Online is notoriously a difficult game for a new customer to learn how to play as Bartle (2009) explained. As such, those Eve Online customers who have "survived" the initial learning cliff-face that Bartle (2009) describes may be, by definition, the more Committed MMO customers. Consequently there is the possibility when comparing the Commitment of customers of gaming products that the findings could be influenced by a survival bias. This may be compounded when comparing game products with very steep learning curves against those games products with noticeably lower learning curves as more *"hardcore"* (Yee,

2006, p.8) and Committed MMO customers may naturally gravitate towards the product with the higher technical difficulty.

10.4 Discussion of Antecedent Constructs

10.4.1 Game Capital

In Chapter Three this study presented from the literature two relevant constructs which related to the Relationship Termination Costs which Morgan and Hunt (1994, p.24) described. These are Game Capital (Malaby, 2006) which represents the sunk investment customers have in the game and the perceived value they would be giving up by cancelling their accounts, and the customer's knowledge of alternative entertainment products. This study has found evidence to support the concept that in the Commitment Trust Theory model (both the 17 path and the five path model tested by this study) that Game Capital as a construct is both significant and has an effective statistical power in its positive association with Commitment (Hypothesis H_1). This has a number of implications.

As MMO entertainment games are by their nature avatar-based games in which a customer creates and develops a character over time, the concept that Game Capital (the effort and time a person has put into that development) signifies heightened levels of relationship commitment is an important one. Effectively the substance of the entertainment product, the game itself, supports a long term investment by the customer which itself is reflected in the nature of the payment side of the business model. The findings also signal and provide evidence for both Business Managers and Game Developers' that those activities or product features which create greater in-game value, be that social or cultural capital, are ones which have an association with the re-subscription decision. Product features such as Warhammer Online's "Tome of Knowledge" (EA Mythic) or World of Warcraft's "Achievements" (Blizzard Activision) or similar such developments across a range of MMO products which allow customers to track and share

(and boast) with other customers would seem to be good examples of the types of product developments which follow this line of reasoning.

It should also be noted that, as Game Capital is a reflection on the current value and not a static value, usually tied to what customers can do with their avatars or how they are perceived by other customers, things which strongly affect the value of the current Game Capital for customers should be treated with caution. A customer who finds that, through a product change (commonly referred to as a "patch"), his avatar has been substantially decreased in its cultural or social importance (more commonly referred too as a "nerf" in game relevant terminology) may reflect that his Game Capital has decreased relative to what it was before, and thus be less committed to the product and less likely to re-subscribe based on this study's evidence. Game Capital should also not be taken for granted. Despite its statistical significance Current Satisfaction has a greater standardised association overall with Commitment, leading to the logical conclusion that even customers who have extremely high level of Game Capital, and have in-game avatars which have high levels of relevant value in the current incarnation of the game, will still leave if they are unhappy or not entertained by the product.

Of all of the constructs, Game Capital was also the most affected by the demographic and customer exploratory factors displaying a substantial variation from the mean in eight of the ten hypotheses. Hours played a week, length of time spent playing MMOs and whether the customer was in a group or not, all had both statistically significant differences and large effect sizes upon the Game Capital construct (Hypotheses H_{20}, H_{24} and H_{27}). Though the statistics themselves cannot indicate or imply causality, in an avatar based gaming product, in which the customer accumulates items, abilities and value over time, the amount of time invested by the customer will be a primary driver of such value. This being the case, Business Managers and Game Designers, from this evidence can see an association between Game Capital (a positive contributor to Relationship Commitment) and time spent

playing (both in terms of hours per week and overall length of relationship), and act on this information accordingly. While there may be moral and ethical questions surrounding this issue, which are beyond the remit of this study, it would seem a rational deduction from the evidence that avatar games which encourage high amounts of hours play per week and thus heightened levels of customer investment may be ones that Business Managers and Game Designers want to support.

The positive association of Game Capital and MMO time spent in years (Hypothesis H_{24}) also provides for some interesting inferences. In the same way that hours spent contributes to Game Capital in an avatar game, logically it follows that years spent playing the product also, by definition in an avatar based game, accumulate Game Capital. The positive association of Game Capital, and thus Commitment, with years spent playing MMOs though indicates a large and long term sunk investment by the customer into either one or more MMOs which overall indicates heightened levels of re-subscription intentions. Importantly, this level is irrespective of the amount of MMOs a customer has bought and played in the past with no evidence found in either the tests of Hypothesis H_{21} or H_{22} that playing just one product, or a few products has any association with heightened or lower levels of Game Capital. Consequently, it would be a rational proposition that customers who have played MMO products for many years, even if they play different games, will give a heightened value to their time investment than MMO customers who have not played as long. This has important implications for the way in which MMO games are marketed and implies (to take the rationale to its conclusion) that those customers who already play MMO games and have done for many years may actually be the best customers to target in launching a new product as these customers, through their greater investments in the MMO genre in total, have a tendency to perceive the levels of Game Capital they have within games as being higher than newer, less experienced with the product genre, customers.

The association between heightened levels of Game Capital and the customer being part of a group (Hypothesis H_{27}) would seem to follow, logically, from the nature of the MMO genre and the concept of Game Capital. Game Capital accumulates from social and cultural activities and artefacts that the customer perceives as valuable. Group play plausibility thus has two effects. Firstly, it may act as a reinforcement of the concepts of perceived value in that being in a community of likeminded customers who place value upon, and actively discuss, the value of social and cultural capital generating activities may actively contribute towards that customer's perception of his capital. Secondly, it may be that the very nature of MMO products in which the most valuable cultural capital artefacts can generally only be acquired though group play may contribute towards this association, though these two explanations are not mutually exclusive and indeed there could be a dyadic relationship between the two. For Business Managers and Game Developers', who from Bartle (2004) are already anecdotally aware of the value of getting their customers to play together, this finding provides additional supporting evidence to conclude that encouraging group play which is easy for customers to access will, by its contribution to Game Capital, overall contribute to re-subscription levels. Thus, mechanisms by which customers can easily find social groupings (particularly newer customers), mechanisms by which they can easily access these groups, and importantly, the drivers or incentives to push customers towards such groupings would seem to be areas on which Managers and Designers may wish to concentrate their attention.

The finding that there is an association between Game Capital and the product a customer uses (Hypothesis H_{23}) similarly has important implications. If there are some products on the market which elicit stronger levels of Game Capital than others, it may be an indication to both Business Managers and Game Designers that they should examine these products carefully to examine the whys and hows behind customers' perception of more value in such products. The two main respondent groups examined for Hypothesis H_{23} in this study were World of Warcraft (Blizzard Activison)

customers and Eve Online (CCP Studios) customers who together represented 86.9% of the sample data. In the analysis, World of Warcraft customers were found to have greater perceptions of Game Capital than Eve Online Customers, which might be an indication to the Managers and Designers at CCP Studios that they may wish to examine the nature of why World of Warcraft as a product elicits higher levels of Game Capital amongst customers, and if the structures or game mechanisms which support this production of Game Capital can be reproduced. This finding may also provide a signal to the producers of new entertainment game products as to which types of game products, and which customer social and cultural achievement structures within the products, produce the greatest levels of Game Capital. With customer perceived value of their game and avatar identified as having a strong association with Commitment (and thus re-subscription intentions) and differing products eliciting different levels of perceived value, it would seem logical that future games would, and should, build upon the social and cultural capital structures of current leading games in future product design and marketing.

The finding of Hypothesis H_{18} that younger players (that is, players below the median age of 27) perceive their game accounts to contain a higher amount of Game Capital than older players (players at or older than the median of 27) suggests that life cycle effects may be occurring. The UK National Office of Statistics shows that in 2008 the average age for having a first child was 29.3 years of age for women while the average father was three years older, at 32.4 years old. While this pattern is not identical across all countries covered in the sample, they are broadly similar to the majority of industrialised countries, which have seen a shift since the 1970s in particular from the firstborn child being born in the mid-twenties to late twenties and early thirties (Office of National Statistics, 2009). The descriptive statistics for the sample data show that 58.9% of the sample designated themselves as Single/Divorced/Widower and 38.7% identified themselves as being in a relationship. Of the Single/Divorced/Widower respondents the median average age was 23 and for the respondents in a relationship the median

average age was 32. While this is far from conclusive, added to the evidence from the national averages, it gives some indications for future researchers to pursue. It implies that an examination of the inter-relationship of age, life cycle, relationship status of the customer, and the customers' perceptions of the value of their Game Capital may be an interesting avenue of future research into customer behaviour and MMO re-subscription habits.

For business managers who are marketing entertainment products and game designers this association between lower age and heightened Game Capital implies that by targeting the younger demographic of the product market they can attempt to maximise the value of the customer's investment in the product. While logical, that may have to be balanced against the finding of Hypothesis H_{25} which found that those players with a higher perceived cost of the subscription have a lower mean scoring of their Game Capital. This is related to age as, for the sample data, the descriptive statistics show that the overall median age of the respondents who perceived the cost of their subscription as high was noticeably lower.

10.4.2 Knowledge of Alternatives

The second of the two Relationship Termination Cost constructs examined by this study was the customer's awareness and knowledge of alternative products on the market. Morgan and Hunt (1994a, p.24) predicted that a more knowledgeable and product conscious relationship partner would be one who better understood the termination costs he would undergo in switching products and the alternative relationships they could form. As such, this study has interpreted that proposition as a prediction of a negative association between Knowledge of the Alternatives and Commitment. This study examines this concept both through the confirmatory Hypothesis H_2 and two exploratory hypotheses H_{21} and H_{22}.

This study found evidence to support Hypothesis H_2 that a greater Knowledge of Alternative products on the market is associated with lower levels of Commitment. However while statistically significant, this finding

actually had very little statistical power, leading to the conclusion that, while there may be a negative association, that association may have little importance in our understanding and modelling of the overall re-subscription relationship. The Knowledge of Alternatives construct was, for example, dropped altogether in the five path model with only a very minor drop in that model's overall explanatory power.

Having played a number of different MMO products (hypotheses H_{21} and H_{22}) did seem to have a significant and large increase in customers' perceptions of their own Knowledge of Alternatives. However with only a tenuous association between higher levels of Knowledge of Alternatives and lower levels of Commitment overall, this may not be something Business Managers or Game Designers should be that concerned about. In contrast the lower levels of both past and current satisfaction, both of which constructs have much stronger statistical associations with Commitment amongst players who have played many games may be of greater importance.

10.4.3 Social Group Benefits

This study presented three relevant constructs which related to the Relationship Benefits which Morgan and Hunt (1994a, p.24) described. The first of these is Social Group Benefits which represents the expected beneficial effects of camaraderie, group affinity and identification a customer experiences, with Confirmatory hypothesis H_3 being that heightened levels of perceived Social Group Benefits will be associated with heightened levels of Commitment to the game. This confirmatory hypothesis was supplemented with a further exploratory hypothesis H_{27} examining the overall effect of being in a group upon all of the constructs in the study.

This study found no evidence to support Hypothesis H_3 which predicted a positive association between the construct of Social Group Benefits and Relationship Commitment. This finding though contrasts sharply with the exploratory hypothesis H_{27} findings which found significant differences with a

small to large size effect in nine of the fifteen variables when the factor of being in a group or not was considered as a factor, including the key factors of Commitment and Future Intentions.

A plausible reason for the difference is the difference in the nature of the measures used. The measures of Social Group Benefits are reflective scale measures adapted from Social dimensions of Camaraderie and Performance evaluation in Pritchard et al. (2007, p.175). These measures evaluate the perception by respondents of their interactions with their fellow groupmates. Hypothesis H_{27} on the other hand is measuring a factual occurrence; the respondent is either in, or not in, a grouping.

Thus, as the measures of the Social Group Benefits construct were reflective and perceptual, and dependent upon the ability to evaluate, it is plausible that there are perceptual measurement issues here to contend with. This is similar to the problem encountered by Morgan and Hunt (1994a, p.23) who were similarly unable to statistically provide evidence to support their hypothesis of a link between Relationship Benefits and Commitment.

> *One possible measurement related explanation for this finding is that relationship benefits were measured as an evaluation…* (Morgan and Hunt, 1994, p.23)

This inference is supported by the more factual responses which underpin Hypothesis H_{27} which tested the factual occurrence of being in a group as opposed to the reflective evaluation of the benefits of group membership. The statistical findings of Hypothesis H_{27} indicate a substantial association of the more factual data of playing in a group, all of the key constructs in the five path model presented by this study being scored higher on average by customers who play in a group. This finding provides academic reinforcement and statistical evidence to the anecdotal and experiential arguments on MMO Game Design, most notably in Bartle (2004) regarding the importance of group structures and grouping.

10.4.4 Metagame Benefits

Metagame Benefits as a construct is derived from the Domain Involvement concept, a concept that implies that some entertainment products and services have benefits or interactions that go beyond the mere usage or watching of that entertainment service. The measures for this study, adapted from the Domain Involvement measures in Gwinner and Swanson (2003, p.284) were expected to show, in keeping with previous studies, that those individuals who were more involved in the domain of their entertainment product would be more committed.

This study found a significant association between Metagame Benefits and Commitment in both the seventeen path model and the simpler five path model (Hypothesis H_4). Though the association had an overall small size effect, there was demonstrated a degree of statistical power (unlike the previously discussed Social Group Benefits) in this association.

This linkage between the Metagame Benefits and overall Commitment has significant implications for Business Managers, Game Designers and marketers of new entertainment products. More than just the concept that customers like to read about their game, the link implies that making more information available to customers, encouraging fans to start radio shows, create blogs, websites and post on forums, in other words; enabling easy domain involvement, is a way to create a more committed group of customers.

If the degree to which a customer is avidly reading websites, scouring information databases for information, and importantly, thinking about the game when they aren't playing, is linked to Commitment, game designers may wish to look at the drivers of this. For marketing purposes, allowing customers to interact and read more about in-game information and data may actually be an important addition to helping more involved customers create innovative content (and thus encourage other fans to get involved).

This finding overall implies that community management is an important marketing function for MMO game products which is associated with higher re-subscription levels. MMO product community management though goes beyond just having a set of well policed forums (though those may be important too) it involves a broader based concept of trying to encourage the customer consumption tribe to form their own communities and waypoints. The ability to get the customer to think about the game product when not playing the product thus goes beyond just the initial game itself, and game product design, it is about building a long term relationship with customers though their interactions with the community; which is clearly a marketing function of a business.

10.4.5 Past Satisfaction

Past Satisfaction as a construct in this study is about the experiential generation of gratification expectancy. A customer who was happy in the past is likely (perhaps irrationally) to expect future experiences to be likewise. The Past Satisfaction construct is thus an irrational behaviour in future decision making, albeit a well documented and *"predictably irrational"* (Ariely, 2008, p.1) behaviour which psychologists have well understood for many years.

The driver and creator of past satisfaction is, by definition, the temporal Current Satisfaction that the customer is experiencing. This finding implies that as that temporal Current Satisfaction passes into the past, customers build their future expectations upon this sunk benefit. This study has already, through Morgan and Hunt's (1994a) Relationship Termination Costs included the concept of sunk costs, (another irrational, predictable, decision making behaviour). Unlike a sunk cost (which the Game Capital construct represents) a sunk benefit does not represent investment behaviour which the customer has been involved in, it is the opposite, it is the past accumulation of product elicited positive effect which the customer has with the product. In other words, it's the memories of the happy good times (a relationship benefit) that they have had playing the MMO game.

This study in Hypothesis H_5 predicted a positive relationship between Past Satisfaction and Commitment in keeping with Morgan and Hunt's (1994a, p.226) prediction of a positive relationship between Relationship Benefits and Commitment. This study found a statistically significant association between Past Satisfaction and Commitment (Hypothesis H_5). Furthermore this association displayed significant statistical power and as such was included in both the 17 and five path model.

It should be noted though that of all the antecedents in the five path model Past Satisfaction displayed the lowest overall standardised regression estimate (0.172) and the lowest Cohen's f^2 statistical power. Current Satisfaction for example has almost twice the association with Commitment. Thus while Past Satisfaction has been identified as an important path, in order of importance in the five path model, it is last behind Current Satisfaction (0.404), Game Capital (0.27) and Metagame Benefits (0.259).

The association found by this study between Past Satisfaction and Commitment does imply a product loyalty that goes beyond the temporal and is additive to Commitment. It implies that in their decision making behaviour customers dwell on their positive memories of the past.

Furthermore, the lack of statistical power in the association between Trust and Commitment is an indicator that in the business-to-customer entertainment based online gaming product relationship that Past Satisfaction replaces Trust as the best predictor of levels of expectancy. A business-to-customer relationship is, by its nature, more distant than a business-to-business one, with usually much less in the way of Termination Costs. Also, while business-to-business relationships are based on concepts such as competitive advantage, in entertainment based business-to-customer relationships the heart of the relationship is product elicited effect. Gratification, happiness and pleasure generated by the product itself is the core of the MMO relationship as exhibited in the study by Current Satisfaction having the strongest association of any of the antecedent constructs with Commitment.

Consequently, the implication of this study's finding is clear, with the Trust expectancy based function (based on such principles as confidence of benevolent relationship behaviour, fairness in dealings etc) being found to have much less statistical association and power than Past Satisfaction driven expectancy (based on past gratification). Thus, the question may be asked by business managers and marketers, does a long term customer need to Trust the games company and believe in its integrity, its brand-name or its honesty to have a successful long term relationship? This may be a route for future researchers to investigate.

Trust is statistically significant and does contribute towards Commitment, however overall Past Satisfaction has much greater statistical power in its association. Thus Managers and Marketers involved in MMO game products should be aware that while Trust may play an important role (particularly in the initial product purchase decision) once the customer has been playing for months (and maybe even years) experience based Past Satisfaction is much greater predictor of future re-subscription decisions.

This implies that while having a strong brand name, having honesty and integrity in your customer dealings and so forth may be important in the relationship, if a company wishes to retain customers, their experiences of product satisfaction must be positive. If those product experiences are not positive, this drives the experienced, satisfaction based, expectancy function, which has a greater overall association than Trust with re-subscription intentions. A customer who has had poor satisfaction experiences, and has poor expectations based on these will still thus probably leave a company which they regard and perceive to be trustworthy (which could potentially affect their future Trust with the company).

10.4.6 Communications Constructs

In keeping with this study's approach to the nature and context of the relationship, this study presented three separate constructs for testing which examined different paths the communication between a customer and the

company might follow. These constructs were In-game Customer Service Interactions (customer to company direct path), Availability of In-Game Information (customer to company and community defuse path) and Perceptions of Game Developers' Communication (company to customer defuse path), and from Commitment Trust theory they were expected to each have a positive relationship with the Trust construct (Hypotheses H_{11}, H_{12}, and H_{13}).

This study found a statistically significant association between In-game Customer Service Interactions and Trust and Availability of In-game Information and Trust. Perceptions of Game Developers' Communication was not found to have a statistically significant association with Trust. Of all three constructs relationships however it was only the path of Availability of In-Game Information and Trust which showed any statistical power in the association. This finding though is further diluted in that Trust has only a very minor overall association with Commitment, with less than half a percentage point of predictive power being lost when all three Communication constructs were dropped altogether in the Five Path model.

This leads to the conclusion that while the Communication constructs may add to the understanding overall of the data sample (as the 17 path model does have a higher predictive power), a more efficient explanation of the data would lose little in dropping these constructs. This though is not to say they are irrelevant as they do display statistical significance, they are found by this study instead to be un-important.

10.4.7 Shared Values Constructs

In the original Morgan and Hunt (1994a) Commitment Trust Theory model Shared Values was the only construct predicted to influence both Commitment and Trust, and thus it had two expected path relationships. In this study, due to the context of the MMO gaming product, the Shared Values construct was divided into two separate constructs: Shared Values with the Game Rules and Share Values with the Games Company.

Thus this study has four separate path relationships which regard Shared Values. Hypotheses H_6 and H_7 path from the Shared Values constructs to Commitment, while H_9 and H_{10} path to Trust. In all the hypotheses a positive relationship is predicted by Commitment Trust Theory.

This study found no statistically significant associations between either of the Shared Values constructs and Commitment, however an association was found between both constructs and Trust. Of the two associations, Shared Values with the Company was found to have a medium effect size in its association with Trust, with Shared Values with Game Rules being insignificant in its effect size.

While overall the importance of both Shared Values constructs is ambiguous due to the lack of statistical power in the association between Trust and Commitment, the strong association of Shared Values with the Games Company and Trust is a noteworthy contribution to our understanding of the relationship. It is important to note that the seventeen path model, after all, does have more predictive value (R^2) than the five path model and Trust (and the Trust antecedents) do add value, however that additional value is less than half a percent explanatory power. Despite this, a better understanding of what the key drivers of Trust are is an important contribution as this may aid in our understanding of other customer relationships with the games company which go beyond just that current subscription a customer may have.

While this study specifically is not regarding the initial purchase decision, many studies have shown Trust in the company to be a prime antecedent in customers buying future products from that same company. As such, while Shared Values with Company (Brand Association with the Company) and Trust may add little to our understanding of the current subscription relationship, they could plausibly be an important driver of a company's future product launches.

This study does not, after all, claim that these constructs are exclusive to just this one relationship or that this is the only business relationship which is important; the re-subscription decision is simply the operational boundary of this study. As such awareness and contribution towards a better understanding of the drivers of Trust may be of great importance when examining other types of business transactions, relationships or contexts.

10.4.8 Opportunistic Behaviours

The MMO context has a rather unique set of Opportunistic Behaviours in that it is the customers themselves, and not the company, who are involved in driving the Opportunistic Behaviours and it is the games company who are potentially losing revenue because of these actions. Consequently, many of the leading producers of MMO games products have enforced a prohibition on third party services, which is articulated through their Terms of Service and End User Licence Agreement with the customer. This study's findings are that, in purely business terms, an enforcement of a prohibition from the demand side could potentially mean the company was banning customers who were, statistically speaking, no less likely to re-subscribe than other players.

In this study, customer-driven Opportunistic Behaviour was examined in two ways. Based on Morgan and Hunt's (1994a) Commitment Trust Theory this study predicted in Hypothesis H_{14} a negative relationship between Opportunistic Behaviours and Trust. Furthermore, Hypothesis H_{26} examined the means of the constructs of those customers who stated that they had partaken in Opportunistic Behaviour activity and compared them to customers who had not.

This study did not find any statistically significant association between Opportunistic Behaviours and Trust (Hypothesis H_{14}) in the confirmatory modelling. Respondents who were adamantly anti-Opportunistic Behaviours evidenced no statistical difference in their overall Trust from those respondents who had no issues with Opportunistic Behaviours. Additionally,

the exploratory hypothesis H_{26} found no statistically significant difference between the future re-subscription intentions of those who had used third party services and those who had not. Those who had used third party services displayed statistically significant higher levels of Game Capital, a greater Knowledge of the Alternatives, a lower affinity with the in-game rules and a large difference in the opinions of Opportunistic Behaviour. No statistically significant difference was found though in the Key Mediating Variables of Commitment and Trust.

This leads to a number of implications for managers and game designers in their reaction to a customer's Opportunistic Behaviours. As there is no evidence that a customer who supports or is involved in Opportunistic Behaviours is less likely to re-subscribe this implies that, from a purely economic point of view, Opportunistic Behaviours have no immediate impact on the relationship between that particular customer and the business.

The words "that particular customer" are used for a reason though, as this study does not claim that Opportunistic Behaviours do not damage other customer relationships or that they do not have any kind of general "environmental" damage (by that meaning increased server usage or in-game market repercussions). Merely, this study comes to the finding that there is no statistical evidence that engaging in Opportunistic Behaviours leads to a lessening of the relationship between a customer and the company, and additionally, there is no evidence that those customers who are adamantly opposed to Opportunistic Behaviours have any higher levels of Trust (which is associated with Commitment and Future Intentions).

This study's finding that those customers who engage in Opportunistic Behaviours are not less likely to re-subscribe leads to difficult and challenging decisions for the company though. Businesses, under the Terms of Service and End User Licence Agreement used by most MMO entertainment products, have a wide range of actions at their disposal with which to react when they find that a customer account has broken the game rules by engaging in Opportunistic Behaviours. These reactions are from the

extreme of an outright account ban, to a temporary account ban, to removing the offending item from the account (and any items that may have been bought with the offending item), to the other extreme of doing nothing.

Companies are thus faced with a puzzle. A customer who has “broken the rules” isn’t less likely to re-subscribe and pay them money. Conversely, a customer whose account the company permanently bans is most certainly faced with a critical event in the relationship, with importantly the customer’s Game Capital, an important driver of Relationship Commitment, gone. Furthermore, it can reasonably be assumed, as a general marketing axiom, that a customer who has just had his account banned will generally be a dissatisfied customer (which may be an understatement in many cases).

As such, less extreme interventions may wish to be considered in which the customer is retained (and thus continues to pay the subscription). Many of these less extreme interventions would require costly hours of time of customer service representatives however and thus actions such as investigating the account, deleting the offending item and any items bought, will have to be weighted by the company in a careful cost to benefit analysis. It should be noted as well that even such “light touch” actions would almost certainly be a critical event in the Customer to Company Relationship. Plausibly this could lead to dissatisfaction as, after all, the customer has paid money for those items which have now been confiscated. At the least the actions would almost certainly (by their nature) decrease the amount of Game Capital that the customer had.

The option of simply ignoring the customer’s behaviour and not engaging in what might be an intervention which could create a critical event in the relationship, would seem, from a purely economic viewpoint, to be an option which would impact neither on Game Capital, Satisfaction levels or the Future Intentions of the customer regarding re-subscription. The most logical target for a company’s enforcement of a prohibition given the trade in third party services concerns both demand and supply is, once you’ve eliminated the demand side as an enforcement option, to go after the supply side. There

is a distinct problem with this supply side enforcement approach though which cannot be ignored. A successful supply side enforcement campaign without effectively managing the demand side should logically, in pure economics terms, simply increase the price of the third party services. This could itself be a worthy goal though, due to the concept of third party services being a luxury which customers can do without (if an online entertainment game is a luxury, by definition buying fantasy money for that game is the pinnacle of unnecessary luxuries) but only if demand is highly cost elastic.

10.4.9 Current Satisfaction

This study has used Gruen's (1995) adaption of Commitment Trust Theory to consumer markets as the basis of including Satisfaction as a key antecedent. Gruen's (1995) paper extended the mediating variable approach of Commitment Trust Theory by integrating Satisfaction *"as a critical central outcome.."* (p.448) in a business-to-customer relationship as opposed to a business-to-business relationship in which it may be peripheral.

In a business-to-business relationship, which is what Morgan and Hunt (1994a) examined, how happy one is with one's business partner may be of little importance, Morgan and Hunt (1994a, p.24) for example discussed enhanced competitive advantage as the goal of a business relationship. Conversely in entertainment products in particular satisfaction and happiness could be the goal in itself. This study thus places satisfaction at the heart of the relationship; as a key antecedent of relationship continuance.

What makes a customer happy and generates satisfaction in a MMO gaming product is a complex area dependent upon personality types, aims, goals, objectives, patience and is of great interest to psychological and sociological researchers such as Yee (2006). This study, in keeping with Morgan and Hunt's (1994a) approach to such constructs as Commitment and Trust, does not attempt to identify the drivers of Satisfaction; merely the outcome. This study asks the question: is the person happy with his product? And: does this

make him more committed? Rather than: why is he happy? The rationale being that the why only becomes important from a business perspective if you can first establish if Satisfaction is associated with re-subscription levels in the first place.

Gruen's (1995) approach to Commitment-Trust Theory predicted that Satisfaction would positively impact upon both Commitment and Trust, and this study has articulated this concept in Hypotheses H_8 and $H_{15.}$ This study found no statistical evidence to support Hypothesis H_{15} which predicted a positive association of Current Satisfaction and Trust. Conversely, Current Satisfaction was found to have a strong statistical association with Relationship Commitment (H_8), displaying both statistical significance and the highest statistical power of all the measured antecedent constructs.

This is important because the evidence implies that in the business-to-customer relationship, in keeping with Gruen's (1995) findings, that the addition of Satisfaction as an antecedent considerably improves the understanding of the re-subscription decision and the overall relationship. For Managers and Game Designers this finding also implies that customer happiness, and the avoidance of critical events or changes which impact on that level of Current Satisfaction are essential.

The importance of keeping the customer happy may not seem like a groundbreaking finding when discussing an entertainment based service, but certainly this finding implies that, from a re-subscription perspective, happy interactions on all levels for customers in their dealings with the company are of great significance. This implies that producers of MMO entertainment products should be looking at all interaction avenues and not just the game product itself, from the approach that workers have when dealing with customer service interactions, from the manner that account billing staff have when resolving issues, at all levels of the business, the finding implies that the question of "what will make the customer happy" should be at the heart of the matter.

This finding also implies that focusing on making the most entertaining computer game product will retain customers. While all of the other issues in product marketing and product game design may be important (and indeed perhaps even necessary) it is an entertainment product which fulfils the satisfaction expectations of customers, and continues to do so in the long term, which will keep them subscribing.

Of the customer and demographic factors examined in this study, Current Satisfaction displayed significantly higher averages amongst those players who had played just one game (Hypothesis H_{21}), or just a few games (H_{22}) as opposed to having played a number of games. Also those customers who perceived the cost of the MMO to be significant to their monthly expenditures (H_{25}) responded with lower overall averages of Current Satisfaction than those who reflected the cost being negligible. Finally (H_{27}) playing in a group was found to lead to significantly higher mean average levels of Current Satisfaction as opposed to not currently being in a group. The findings of Hypothesis H_{21} and H_{22} provide evidence that those customers who have experienced less games are more committed to the current relational exchange, a suggestion further reinforced by the finding of H_2 that a Knowledge of Alternatives amongst customers is associated with lower levels of Commitment.

If customers who have a greater knowledge of the alternatives and have played many different games are, in general, displaying lower levels of Current Satisfaction, this may be an indication of a sub-set of promiscuous customers who the company will find difficult to retain in the long term. This may also be an indication that over time, as the MMO industry goes on and develops, and the customer base gains greater and wider product knowledge, that high satisfaction levels in general may be harder to attain. As such, the causal direction of the association may be of great interest to future researchers in this area.

Hypothesis H_{25} found that customers who perceived the cost of the MMO to be significant to their monthly expenditures responded with lower overall

averages of Current Satisfaction than those who reflected the cost being negligible. Those customers who perceive the cost of the ongoing subscription fee as non-negligible, as substantial and noticeable, are customers who are associated statistically as having less current satisfaction levels, which is associated with less Relationship Commitment and less future re-subscription intentions. This has significant implications for companies, as the logical deduction is that ability to pay and making customers more able to pay, may be a consideration of making customers more committed overall. A company who has the aim of the broadest customer base would logically be one which allows its customers a variety in their possible methods of payment and is perhaps innovative in its approaches to customer payment.

Finally the finding of Hypothesis H_{27}, that those customers, on average, who play in a group are more satisfied than those customers who don't, has significant product design implications. The ease with which customers can find, join and interact with other players in in-game groupings should logically, based on these findings, be a prime concern for both product designers and managers. Understanding if this variable can be manipulated by product design features may be an important line of future research in this area.

10.5 Summary

Trust in the benevolence and kindness of the other party in the relationship is usually a key mediator of how a partner considers the quality of that relationship. In the business-to-customer MMO games market however, when expectation of satisfaction and gratification is the key driver and the customer can rely on consumer law as a replacement to shared norms and values, Trust that the business will be kind or benevolent in its interaction with the customer is evidenced to be un-important. If the Gruen (1995) interaction framework is considered to be plausible, that finding implies more reactionary relationships.

The key drivers of MMO game customer re-subscription all share a common element; they all directly relate to the customers' experience. The key antecedent of Game Capital relates to how much the customers themselves have invested in the game product. Metagame Benefits relates to how much customers perceive and enjoy reading about their game. Current and Past Satisfaction are personal evaluations of lived experience. There is a common theme, leading to the conclusion that an MMO game is an experiential product in which Commitment, the enduring desire to remain in the relationship is built by perceptions or conceptions the customer builds over time. However, this does not make the analysis of non-key constructs irrelevant to businesses. Though the scope of this study is MMO re-subscription, beyond those narrow boundaries of this study these constructs may be relevant to other kinds of relationships the business enters into with the customer such as future product sales. This study now moves to the next and final chapter which summarises this thesis, details the theoretical, methodological and managerial contributions, discusses the study limitations and finally outlines future research avenues.

Chapter Eleven

Conclusions and Implications

11.1 Thesis Summary

This thesis investigated the importance of relationship marketing customer service constructs in the re-subscription decision by customers of MMO gaming products, and the influence of relevant factors upon them. This chapter closes the thesis by summarising that investigation, and then moving on to discuss the contributions and implications of the research findings.

The gap in the literature that this research addresses has been defined as the practice-theory gap between the non-instrumental psychological, sociological and economic research that academics are providing and the instrumental, product focused, research that game developers as business people are requesting. The three research questions of this thesis are defined by the subscription MMO gaming business model itself, namely, what are the important key drivers of the re-subscription decision? How do the drivers interact? And what factors affect them? The concepts of customer retention and commitment are key to the financial success of subscription based MMO games and these questions are both instrumental and product focused, and as such, address directly the gap in the literature.

This thesis defined Commitment Trust Theory as a nomological framework that it is focused on understanding the key drivers of a successful relationship. This theoretical framework places the marketing constructs of Customer Commitment and Customer Trust at the heart of the decision making process made by customers to continue a relationship. The Commitment Trust Theory model is an adaptive, contextual model which has in the past been tailored to a number of different business and organisational environments to examine predictors of relationship success. In particular this thesis draws upon the work of Gruen (1995) in the adaption of the theory to a business-to-customer mass market setting.

This study examines this business-to-customer relationship from a relationship marketing perspective, defining relationship marketing by Gronroos's (1996) definition which is focused on the role of relationship marketing to *"identify and establish"* (p.11) relationship drivers. This synergizes well with this study's approach to addressing the principle research aim of understanding the relationship. Central to the Commitment Trust Theory and Relationship Marketing approaches is the nature of the customer relationship with the business. This study defines this relationship as a membership, with the relationship displaying both Gruen's (2000) five general similarities of a membership and the five unique characteristics.

The investigation conducted applies Churchill's (1979) research design approach to examining the nomological network of constructs that the Commitment Trust Theory establishes. Concentrating on Churchill's (1979) recommendation of having clear and delineated domains for the constructs this study found that the definitions of the five antecedent constructs that Morgan and Hunt (1994a) proposed were too wide in the MMO context. On the basis of the literature review, and two pieces of initial exploratory fieldwork, this study separated out the five constructs into eleven clearly delineated antecedent's which are consistent with the themes of the original Morgan and Hunt (1994a) variables. In addition, this study adopts Gruen's (1995) adaptation of Commitment Trust Theory to a business-to-customer

mass market setting by accepting the addition of the satisfaction construct as a key variable in the psychological outcomes of a relationship.

This study, using the adapted nomological framework of Commitment Trust Theory as the basis, sets out 17 hypotheses for testing which directly relate to the re-subscription decision in MMO customers and address the first research question. The study supplements these with a further ten exploratory hypotheses which investigate the effect of demographic and situational variables upon the constructs to examine and address the second research question.

In keeping with Churchill's (1979) approach to research design this study piloted an online questionnaire survey. The feedback of 28 participants in four cycles of evolution was used to further define the domains of the constructs and further purify the measures. This study followed Straub et al.'s (2004, p.413) advice that researchers should use previously validated instruments wherever possible, and clearly mapped the domain of the construct to correspondence measurement rules.

The main investigative survey was then conducted, with data from 2226 participants collected from 1st June 2009 until 19th of June 2009 using a self administered online questionnaire which had been promoted, with permission, on well-travelled websites identified in the preliminary stages of this research. Demographics of this collected data was then benchmarked against the findings of other large scale studies and found to be consistent with them.

Confirmatory Factor Analysis was used to assess the measurement and structural models of this study's nomological framework in keeping with the two step approach of Structural Equation Modelling (Arbuckle, 2009). The analysis of the measurement model found that the 15 constructs proposed were unidimensional, reliable and exhibited convergent and discriminant validity. Goodness-of-Fit statistical tests indicated that the data fitted the structural model within statistically acceptable bounds. The Structural

Equation Modelling software of AMOS 17 was then used to test the 17 confirmatory hypotheses. The ten exploratory hypotheses were tested using t-tests using SPSS 16.

11.2 Conclusions Regarding the Research Questions

1) Which of the relationship marketing customer service constructs identified from the literature are important in the re-subscription decision made by customers?

This study differentiates important from relevant. Relevant customer service constructs are statistically significant in their relationships, however, statistically significant does not necessarily mean important. For a measure of importance this study uses Cohen's (1988) effect size as the further delineator. An important relationship marketing customer service construct in the context being one that is both significant and powerful in its association in the nomological network presented by Commitment Trust Theory. In applying an alternative models Structural Equation Modelling approach to analysing the data this study has tested three models: an additive linear Morgan and Hunt (1994a) "*rival model*", a Seventeen Path mediating variable model including all of the customer service variables, and a Five Path mediating variable model based on just those relationships that display an effect size in their association.

This study, in the comparison of the *"Rival Model"* and the Seventeen Path Model has added weight to the evidence that Commitment and Trust are better modelled in nomological frameworks which place these mediating variables at the heart of the customer decision making process. This study's finding was that a linear additive *"rival model"* fitted the data poorly in comparison to the Seventeen Path Model. However, while the Seventeen Path Model presented by this study shows what customer service constructs are relevant, and where and how they fit into the nomological framework, it lacks a concentration on importance. Whilst this Seventeen Path Model

displays both reliability and validity, many of the effect sizes displayed by the associations in the network are insignificant.

Comparison of the Seventeen Path Model (containing 15 constructs) with a Five Path Model (containing six constructs) which just contained the construct associations which displayed significant effect size found that a 70% reduction in the complexity of the Seventeen Path Model led to only a 0.4% decrease in the explanatory power. This does not mean that nine constructs were found to be irrelevant by this study, indeed the opposite is true; they're found to add to the explanatory power of the model. The lack of significance in the change of the explanatory power of the model when they are removed does however speak for their importance in the data.

As a research investigation based on the scientific realism paradigm, this study views the generation of knowledge as the seeking of truth (Hunt, 1990, p.8). Scientific realism places parsimony and philosophy of efficient explanations of that truth at the heart of its adoption of inductive realism. With this in mind, the Seventeen Path Model is technically a superior explanatory model in that it does explain more, however it is the judgement of this study that it is also a much worse model than a Five Path Model containing six constructs because it is highly inefficient in its explanation. It is the judgement of this study, based on parsimony, that a 0.4% loss of explanatory power is acceptable when it results in a 70% reduction in model complexity and nine less constructs to be considered.

The antecedent variables of Past Satisfaction, Game Capital and Metagame Benefits and the psychological outcome of Current Satisfaction are found to be the important drivers of Commitment and future MMO re-subscription decisions. This study found these constructs to be both statistically significant and statistically powerful in their associations. This study also found that in the mass market business-to-customer MMO gaming relationship, Benevolent-based Trust (and as a result, all of benevolence trust drivers) was relevant, but unimportant, to understanding the re-subscription decision. Expectancy based gratification, as articulated by the

domain of the Past Satisfaction construct, was found to have a much greater association with Commitment. In short, customers of an MMO entertainment product are influenced in their re-subscription decisions by their own impressions of further gratification more than their trust in the company's good intentions. This leads this study to support a nomological framework based on a customer Commitment-Satisfaction model in mass market MMO entertainment products.

2) Are there relevant variables in the context which affect these relationship marketing customer service constructs?

This study presented ten exploratory hypotheses examining a range of relevant contextual variables. This study found that there where statistically significant affects displayed when testing these variables, many of which displayed a significant effect size in their association with the constructs analysed.

Of the largest effects found, time spent playing a week in hours and total time spent playing in years displayed large size effect differences in the Game Capital Construct. Since this construct displays a strong association with Commitment this indicates that further research into how Game Capital is constructed and how businesses can manage how customers gain Game Capital may be of importance in future research into avatar based MMO subscription games. Similarly being in a group and group play overall displayed the joint largest number of differences in the constructs with nine statistically significant differences, which also displayed a significant effect size, found between those who played in a group and those who did not. This finding further reinforces and gives evidence to the MMO game design maxim that getting customers to work together drives commitment (Bartle, 2003).

Overall each of the ten hypotheses displayed a statistically significant difference in a construct. For the key variable of Commitment it was found that the factors of playing many hours a week, how long the customer has

been a customer, which game the customer plays, whether the customer plays in a group or not and his perceptions of the size of the cost to play the game all have significant associations with higher levels of that construct.

3) How do the key relationship marketing customer service constructs interact to influence the re-subscription decision?

Gruen's (1995) examination of the interaction of the key relationship constructs forms the basis of this study's analysis framework. This investigation finds that benevolent Trust is relevant, but unimportant, in the business-to-customer relationship and that future gratification expectancy is more important in entertainment subscription relationships. Analysing the interaction of the three key mediating variables of customer loyalty – Commitment, Trust and Satisfaction – suggests that the mediating effect of trust can be dropped from the relationship analysis.

Without the mediating effect of benevolent trust it would be expected that the customer relationship with an MMO entertainment product is much more volatile than a relationship in which benevolent trust is important. A customer in a mass market relationship is unlikely to remain loyal in a *"frustrating relationship"* or an *"unfortunate relationship"* (Gruen, 1995, p.464) and would be expected to leave to another form of entertainment if this type of relationship occurred.

11.3 Methodological and Theoretical Contributions of the Research

This thesis, within the bounds of the research scope, investigated the re-subscription decision amongst customers of MMO entertainment products. The gap in the literature that this research addresses is specifically the practice-theory gap between the non-instrumental, non-business, research that currently dominates in academic journals and inquiry, and the instrumental business practice research that game developers desire (Hopson, 2006). This thesis has made a number of methodological and theoretical contributions to this area of the academic debate.

From a methodological perspective this study has provided a rigorous examination of constructs that are important to the re-subscription decision in MMO games. This study has followed the Churchill (1979) framework of research design and concentrated on the identification and delineation of the domain of the constructs which affect the customer's decision making process. These constructs were adapted from the marketing literature in a number of entertainment based settings, and evidence and argument was given for the relevance of them to an MMO setting. In following this process this investigation has placed construct validity at the centre of the examination. Through Churchill's (1979) procedure of re-examining the domain of the constructs in the light of findings from exploratory studies and participant feedback from pilots, this study has defined clear constructs which have subsequently been statistically proven to display both internal discriminant and convergent validity.

Furthermore, this thesis, through its use of the alternative models approach to Structural Equation Modelling, has added weight to the evidence that long term relationships are better modelled when the variables of Commitment and Trust are placed at the centre of the decision making process. Clear evidence has been found that a linear additive approach to modelling, the Morgan and Hunt *"Rival Model"* (1994a, p.30), fits the data badly, with both the coefficient of determination and the goodness of fit statistical measures outside of acceptable parameters.

Following from this, this investigation has applied Kaplan (1995) and Chin's (1998) arguments that Cohen's (1988) measures of effect size is a *"critical"* yet *"neglected"* (Chin, 1998, p. xi) part of structural equation modelling. This study applies Kaplan's (1995) request that effect size is used as a *"routine part of establishing the statistical validity"* (p.117) and, using a alternative models approach, compares the statistically significant model to a model based on just those nomological paths which display an effect size in their association. The findings of this study contribute to the Structural Equation Modelling literature by displaying that an alternative modelling approach

based on effect size has significant parsimonious benefits in reducing model complexity.

Lastly, the domain of this thesis is the customer's re-subscription decision, an area largely ignored by previous studies into MMO games. In a literature dominated by examining the unit of analysis as the experience of a game player, this study instead focuses on the customer, and the unit of analysis is the instrumental, business focused commitment that a customer shows to the product by re-subscribing. This thesis addresses this area in an objective and rigorous way, and by identifying the unit of analysis as a customer of an entertainment service, rather than as a game player, this study widens and adds to the current literature regarding how users of MMO entertainment products are analysed, and their behaviours modelled.

From a theoretical perspective this investigation adds weight to the evidence from Gruen (1995) that Satisfaction is a key part of Commitment Trust Theory when examining business-to-customer relationships. This study has found that both Current Satisfaction and Past Satisfaction are both relevant and important parts of customers' commitment towards their product. The original Commitment Trust Theory research by Morgan and Hunt (1994a) was based in a business-to-business environment, and this study adds to the evidence presented by Gruen (1995) that adaptations need to be made to the nomological framework to conform to the business to customer mass market environment.

Furthermore, this thesis has provided a rigorous practical examination of Malaby's (2006) Game Capital theoretical construct. Game Capital has been found to be both relevant and valid, and has been found to be an important indicator of continued Commitment in MMO games. This gaming sunk cost construct containing the elements of material, social and cultural capital is one which may have applications beyond the MMO gaming segment, in particular in console gaming and console hardware loyalty, and avatar based products in general.

Additionally, this thesis has interpreted trust as a multi-faceted construct that has two key dimensions; credibility based expectancy and trust in benevolence (Anderson and Narus, 1990; Ganesan, 1994; Kumar et al., 1994). This study has found that in mass market online entertainment products that trust in the benevolence of the deliverer of the entertainment service is relevant but unimportant. This is seen as a key finding and contribution to the literature. For the context of entertainment products and services in mass market environments, where customers are protected by consumer protection laws (which are generally biased to favour the buyer), experience based gratification and gratification expectancy have been found to be more important drivers of product commitment than the perceptual belief that the service provider cares for the customer's well-being. This is seen to be a finding with possible cross-product significance in the entertainment service sector as a whole, with important implications regarding how products are marketed and what concentration (and expenditure) companies may wish to place on increasing the perception of them as a benevolent company.

Finally, this thesis provides insights into a developing and growing industry sector. Relationship Marketing is an applied discipline and as such it is important to the discipline to examine contemporary industries and continue to be relevant to modern and growing business sectors; which this thesis does. The computer games market is currently bigger than the movie industry and the music industry, both industrial sectors which have been widely examined by marketeers, yet it currently remains an under-researched area in the marketing literature, *"…understanding of the entertainment software industry in the scholarly literature is still very limited, and under-researched given the large size and importance of the industry"* (Alpert, 2007, p.90). The games industry is big business; this thesis adds to the weight of growing theoretical research into the under-researched computer games industry by examining a successful business model in a segment of the PC market.

11.4 Practice and Managerial Contributions of the Research

The managerial implications from the thesis are clear. An online MMO subscription entertainment product has a successful business model when it: allows customers to invest and produce capital in the game; has a wide variety of metagame activities that customers can review and interact with; and, most importantly, when it controls and manages the expectation of gratification well.

MMO entertainment games are avatar based games, this investigation evidences that an important driver of commitment and re-subscription is the investment that a customer puts into this avatar and game, be that through material, social or cultural capital. The building of these sunk costs into a product is key to creating barriers to switching and prolonging the customer's subscription to the game. The business, from the outset in product design, has complete control over how these switching costs can be developed and enhanced, and this research indicates that a key driver of re-subscription is the creation of value to the customer. This research proposes and evidences that the creation of value to the customer should be core to MMO product features, with the re-subscribing customer being in a position to easily appreciate, easily reflect on and easily perceive these values. The value that a customer has in the product serves a key dual role in the re-subscription decision. It provides a reason to the customer to stay, and a cost barrier for the customer when contemplating switching. This research emphasises that understanding and managing these reasons is key to the success of the MMO gaming product subscription business model.

The metagame, the community and informational forums that surround the game, are an important key area which MMO businesses need to manage. While this study has found customers may spend an average 23.77 hours a week playing their gaming product, Yee (2006, p.13) has found that another average 10.8 hours of that week is spent by a customer reviewing, reading about and perusing game product related tasks. This investigation has found

evidence that the metagame is both relevant and important to the customer. The generation, development, control and manipulation of the metagame community is something which is usually the domain of the community management team within a company, generally a part of the public relations and marketing departments. This study evidences that, far from being a product-related activity, a bolt-on to the game product, the metagame and community are core parts of the commitment that a customer builds with the product. A vibrant, accessible, informative and engaging online community which the customer feels that they want to be a part of is important to re-subscription. This thesis concludes that the managerial implications are that businesses should be well placed to nurture and manage the communities which have an important effect on their income streams. Given the importance of the metagame to the customer commitment, to leave the development of an online community to chance, or a few technologically minded avid fans whom you cannot manage, seems rather foolish when you consider the $100m and more development and marketing budgets of major MMO gaming products. On the evidence of this study the development of a game product metagame that adds to the customer experience should be a core part of the overall product design.

Finally, the findings of this investigation regarding both gratification and expectations of gratification emphasises the importance of satisfaction and expectations management in dealing with customers. This investigation has found that experienced satisfaction is more important to customers than perceived trust in benevolence. Entertainment customers in mass markets are gratification driven; how kind, caring or trustworthy a business is perceived to be was found to be unimportant in online entertainment gaming products. There are two core areas for a business to consider.

First, the current satisfaction experience of the product is king. This study evidenced the current satisfaction a customer feels as the most important variable associated with commitment. As a continuous product which a customer re-subscribes to, this implies that the business must be innovative

and creative in supplying new content for the customer to enjoy, while at the same time remaining true to the core satisfaction generating activities. This finding evidences and implies that any MMO gaming product that uses a subscription business model should not be viewed as a one-off but a continuous process of development of experienced satisfaction experiences. The evidence from this research implies that companies must have a continuous plan for new content and new satisfaction experiences to keep their temporal, in-the-moment, customers happy, which logically involves the dedication and commitment of the business to service this need. Entertainment products which are able to provide a continuous series of gratification events with new product content and maintain that temporal satisfaction with a steady stream of updates will be expected to do much better than those products which have large delays between new satisfaction generating content. With customers being temporal and gratification driven (and with benevolence as unimportant), customers faced with a drought of current satisfaction are found by this study to be less committed and thus, less likely to re-subscribe.

Secondly, this study has evidenced that expectancy of gratification based on past satisfaction experiences is a key driver of commitment. This implies that expectations management is a key part of how a business manages the customer experience. With temporal current satisfaction being so important, the expectations of future gratification have been evidenced to drive commitment and re-subscription. This study's finding implies that it is imperative for the business to keep the customer expecting that "just over the horizon" or "just next month" new gratification experience if only they stick with the game. The continuous moving horizon of just one more bigger "cooler" dragon to slay, one more "staggeringly awesome" ship to destroy, or one more "amazing" super-villains hideout to attack is found by this study to be a core synergy of the MMO gaming product and the subscription income business model. Customers subscribe for the current content, they re-subscribe because of their expectations that next month's content will be just as good or better. The generation of expectations is nothing new to

businesses, and has been known in products as diverse as comic books and soap operas with their cliffhanger endings posing the “what happens next?” question. Indeed, hype and marketing buzz creating high expectations is a key part of a transactional marketing approach to selling a one-off video game product. The findings of this study imply though that expectations management, not just the creation of expectations, is a key component of successful long term MMO game business-to-customer relationships. It would be easy to over-hype and create great expectations regarding a MMO-gaming product’s next month’s content, but as an experienced product with a subscription business model, unless those expectations are matched with delivered gratification the customers’ expectations are going to be disconfirmed and the customer is going to be un-satisfied with that month’s subscription. An unhappy customer is one more likely to not re-subscribe. As such, this implies that a successful MMO product isn’t one that continuously concentrates on making as much of a marketing buzz about their upcoming content as possible, it is one instead that attempts to create and generate realistic customer expectations. Over-hyped and unrealistic expectations will lead to dis-confirmation, dis-satisfaction and poorer re-subscription figures. Expectations management to create realistic assumptions about upcoming product content is thus a key business area to maintain re-subscription figures.

11.5 Thesis Limitations, Enhancement, Reflection upon Research Design and Suggestions for Future Research

This thesis discussed the boundaries of the research in Chapter One however the limitations of the research process itself *“invariably”* (Grant, 2003, p.342) give rise to issues which may be examined in greater scope by future research. This study has four areas which proved to be limitations on the research undertaken.

Firstly, this thesis has been limited to a non-random sampling technique due to the confidential and hard-to-reach nature of the customer population. While commercial and competitive advantage issues remain, this is likely to

remain a barrier to research in this industry segment. However, despite this, a key first step in external validity is the future replication of this study with a random sampling frame to verify the results and extend the ability to generalise.

Secondly, in this investigation a broad sample of subscription MMO online customers has been taken. While a specific boundary of this study was addressed in Chapter One as its use of the English language in a global marketplace, further replication of the studies across language barriers is seen as an important part of future research to determine external validity and generalisability across customers of this industry. In particular the growing market of China is repeatedly cited in the academic gaming literature as an important part of the industry. Research which seeks to replicate the results in the Far East Asian market is seen as an important step in cross-validating this study's nomological framework across different cultures to form a rigorous basis for Commitment-Satisfaction.

Thirdly, Commitment Trust Theory statistical modelling is a *"single point in time"* (Morgan and Hunt, 1994a, p.25) technique and as such contains a specific over-riding limitation; survival bias. While point in time research techniques display concurrent validity (they tell us about the present) they lack both evidence of predictive validity and longitudinal stability of the variables. Specifically Morgan and Hunt (1994a) did not know about the automotive tyre retailers who had closed down because of bad relationships and further researchers like Holdford and White (1997) could not survey those students who had dropped out in their first year when examining pharmacy student commitment. The problems raised by single point in time research models can be overcome by longitudinal research designs however, which examine such factors as drop-out rates over time. Thus an avenue for future researchers is the modification of the investigation to repeatedly track changing attitudes of a set of customers over time.

Fourthly, due to the exploratory nature of the demographic and situational hypotheses examined no causal directions were presupposed by this

examination, the null hypotheses testing if an effect was present or not, not the direction of the effect. For example it was found by this study that being of the male gender, playing more hours a week and being in a group (Hypothesis H_{19}, H_{20} and H_{27}) were all factors which displayed statistically significant higher average levels of the Metagame Benefits construct. For these factors though the causal direction of the association is unclear.

For instance, does a customer who is in a group interact more with the community because of being in a group, or is being more active in the community and with other players the drive for his to be in the group in the first place? Similarly, does a customer who plays more hours interact more with the community, or does interacting more with the community lead to customers playing more hours? Or possibly these may be dyadic relationships were each contributes to the other and they are plausibly self-reinforcing. Similarly, the finding of higher levels of Metagame Benefits amongst male customers doesn't necessarily lead to the conclusion that male customers are more committed customers than females overall. It would, on first glance, seem to give evidence to indicate that, on average females find the interaction with the community though forums, the listening to detailed podcasts about in-game facts and figures and the poring over of large databases of information (and so forth) of less interest than their male counterparts. This may be misleading though. Web forums of MMO games are particularly renowned for being confrontational at times which may not suit a number of personality types (which may possibly include a number of women) and as a more feminist interpretation may be that by just delineating on sex, rather than on personality types or preferences pre-supposes a conclusion. In such an interpretation the factor used (gender) is itself a flawed factor. This study doesn't itself have an underlying feminist philosophy or interpretative stance, but this possible reasoning is mentioned just to highlight that the potential conclusion that women customers are less committed customers than male customers could be one which is fatally flawed in its logic. These are unknowns that necessitate further and future research. This study has provided evidence that the variables display both

statistically significant and in many cases, statistically powerful associations with the variables, future researchers may wish to examine the underlying causal nature of these associations.

Furthermore, upon reflection, there are three areas where this study could be enhanced by changes to the research design approach taken. These enhancements do not detract from the contributions or findings of this study, but are presented as future directions that researchers may wish to take.

Firstly, this study has found that Game Capital is an important driver of re-subscription, but due to the focus of this investigation on current customers the drivers of the "burnout" concept (Yee, 2006) cannot be tracked. The concept of "burnout" is a well known concept in MMO games (Yee, 2006) in which customers have played the game so much that they no longer gain satisfaction from the game and leave, leaving their Game Capital. The findings of the exploratory fieldwork suggested that Game Capital grows over time, as the months and years progress so does the investment value of the avatar to the customer. The acknowledgement of this "burnout" syndrome is a counter-point to this study's findings that increased times spent playing in both hours, weeks, months and years leads to greater subscription, as the customer leaves the game completely. A point in time study though cannot examine "burnout" nor the effect of "burnout" on customers who have left. This would require investigating former customers of MMO games to determine a framework in which exit drivers such as "burnout" are taken into account. With a sample frame of current customers difficult to access though, a sample frame of former customers may be even more problematic.

Secondly, as the nature of the game products is one of cyclic releases of content to retain customers, which builds expectations of satisfaction, a useful line of investigation would be to track customer's pre-expansion release and post-expansion release to analyse the effect of expectations confirmation-disconfirmation upon future re-subscription intentions. As a large scale, point in time study, this investigation has not tracked or examined expectations disconfirmation and dis-satisfaction, nor examined

the extent to which critical events can occur over time because of dis-satisfaction. This would entail a longitudinal research design which tracked research participants over time.

Thirdly, this research has been conducted in a business environment in which no major scandals or benevolence trust dis-confirmation critical events have occurred. Given this study's finding that benevolence trust is relevant, but unimportant to the re-subscription decision, and that satisfaction is more important in mass market entertainment MMO gaming products, the examination of this finding in a more volatile trading environment would seem pertinent and appropriate. This would obviously require a major trust-breaking crisis event to occur within a major western MMO gaming product, which to date, particularly in the market leader product, Activision Blizzard's "World of Warcraft", hasn't occurred. A comparison of a non-crisis period trading window and a crisis period trading window and the effect these events can have upon the customer's re-subscription intentions is seen to be potentially very insightful and will add evidence to the importance of trust in the relationship.

The final suggestion for future research is broader in scope and involves the marketing discipline as a relevant, contemporary and industry focused research active contributor to knowledge generation and development. The video games entertainment industry is one of the largest entertainment industries in the world and yet is "*under-researched*" (Alpert, 2007, p.90) despite the marketing spend on most video games being substantial; the USA launch of the Wii Fit game for example had a $40m marketing budget (Garrity, 2008).

This thesis has addressed the video game as an entertainment product which is part of an important multi-billion pound business. Ongoing and further applied research into this industry is seen as important for marketing research to remain contemporary and business relevant. This research has been instrumentally focused, providing answers to a business model question over long term profit generation though customer loyalty.

Future research into this industry needs to be conducted and two hurdles overcome. Firstly, researchers must address the expressed desire from games designers for research which is useful and instrumental. Hopson (2006) makes clear; *"the games industry isn't listening"* (p.1), researchers must reflect on the idea that maybe this is because they just aren't publishing anything which is actually of use to the games industry, or worth listening to. Secondly, there must be greater involvement and engagement from the games industry with researchers. This study found insurmountable hurdles in gaining access to information, and while competitive advantage and confidentiality issues need to be addressed to reassure game developers, the potential usefulness of business research to the games industry shouldn't be stifled by them.

Glossary of Terms

Account	Shortening of games account. The account is the customers' overarching formal relationship with the games company. Customers usually pay for the subscription on the basis of the account, not how many avatars they have. A customer can usually have one account, and many avatars. Some customers have multiple accounts for the same game (and thus pay multiple monthly subscriptions)
Age of Conan	Heroic fantasy MMO based on the Conan franchise, owned and maintained by Funcom, a Norwegian company.
Avatar	The computer representation of the customer's presence in the virtual environment. It is through the avatar that the customer interacts with the virtual world on the computer screen. Avatars usually can be developed and grow in significance as the customer spends more time on them.
Ban (Banning)	Temporary or permanent closure of the customer's account by the games company, due to an infraction of the TOS or EULA.
City of Heroes	Superhero based MMORPG owned and maintained by NCsoft, a Korean company.
Class	Defining characteristic of an avatar, usually decided upon creation, which defines their group role. Some games are specifically class-less (notably Eve Online) and allow for customers to change or switch the group roles with the same avatar.
Convergent Validity	Convergent validity according to Campbell and Fiske (1959) is when, in the presence of other scale items for other constructs, the scale items in a given construct move in the same direction (for reflective measures) and, thus, highly correlate. In a factor analysis, we would expect to see such items loading together on one factor, and not cross-loading on another construct altogether, which would be an indication of factor purity as discussed further by Todman

	and Dugard (2007, p.172). Convergent validity differs from reliability in that tests of reliability include only the scale items for a single construct and they are not being compared to other constructs (Straub et al, 2004).
Discriminant Validity	Discriminant validity according to Campbell and Fiske (1959) is when, in the presence of other scale items for other constructs, the scale items in constructs being compared do not move in the same direction (for reflective measures) and, thus, do not highly correlate. If the lack of correlation is as expected by the formulation of these constructs, then we can say that we have established discriminant validity. In a factor analysis, we would, for instance, see unrelated items loading on different factors (Straub et al, 2004).
DKP	Dragon Kill Points. This is an example of a meta (beyond-the-game) currency used by players to distribute in-game items. The currency has no in-game or out-of-game value, and no value beyond what the players give it. Usually used for distributing scarce in-game items by guilds or groupings.
Eigenvalue	The sum of the squared loadings of the variables on a factor is known as the eigenvalue (or latent root) of the factor. Dividing the eigenvalue by the number of variables gives the proportion of the variance explained by the factor. The higher the eigenvalue, the higher the proportion of the variance explained by the factor, so it is possible to set a criterion eigenvalue for acceptance of a factor as being important enough to consider. The K-G Rule (Guttman 1954; Kaiser, 1960) uses a criteria value of 1 and factors which have a lower eigenvalue are not retained (Todman and Dugard, 2007, p.169).
EULA	End User Licence Agreement. A formal, legalistic, contract between the company and the customer which specifically defines the terms under which the customer can use the product. Customers must usually accept this (by pressing an acceptance button) before they can actually access the MMO game.

Eve Online	Space Trading based MMORPG owned and maintained by CCP Games, an Icelandic company.
GM	Games Master. Pen and paper RPG term used in MMORPGs to denote the customer service representatives of online games. Particularly used by World of Warcraft.
Guild	A cohesive and social player grouping which facilitates the achievement of in-game goals in the World of Warcraft game. Other games use different names depending on the theme of the product, such as corporations or supergroups, though the concept remains the same.
KMO	The Kaiser-Meyer-Olkin measure of sampling adequacy is an index for comparing the magnitudes of the observed correlation coefficients to the magnitudes of the partial correlation coefficients. In other words as discussed by Dziuban and Shirkey (1974, p.359) it "*gives an indication of whether a particular variable "belongs to the family"* or is actually a completely unrelated set of variables (a "set of orphans" to continue the analogy).
Level (Leveling)	Avatar based games, from their RPG roots, often have a system in which a player's avatar gradually gains power over time. Each level the player achieves with the avatar usually grants more powerful abilities, and allows access to greater content. When the player has reached the maximum level (the "level cap") with the avatar the player can then usually access other activities such as large group based activities ("raiding"). Some games purposefully avoid levels and levelling (notably Eve Online).
MMO	Massively Multiplayer Online.
MMORPG	Massively Multiplayer Online Role-Playing Game.
Nerf (Nerf-ed)	A change to the game world, environment or achievement structure, which changes a game parameter that results in a perceived decrease in the value or worth of a subsection of customers avatars. The term references the NERF brand of toys which are soft and less likely to cause serious injury.

Patch	An update of the game product with either corrections to the game code or new content.
RPG	Role-Playing Game. The progenitor of modern online MMORPGs, a pen and paper interactive game in which players describe the experiences, and tell the stories, of imagined characters for entertainment purposes. Dungeons and Dragons being the most widely recognised of these games. Usually has a Games Master (or rules judge) who determines the outcome of the players' actions to a pre-described rule-set.
TOS	Terms of Service. The rules which one must abide by in order to use the service. In MMO games these rules are usually formally articulated and customers must accept (usually by pressing an acceptance button) them before they can progress to play the game.
WoW	Shortening of the name of World of Warcraft which is usually used by players and the media.
World of Warcraft	World of Warcraft is a fantasy based MMORPG owned and maintained by Activision Blizzard, an American based company.
WYSIWYG	Much used computer acronym of "What You See Is What You Get". Used to describe computer programs which allow the user to see on screen what they will get when they print, rather than the use of a programming language or similar. In Structural Equation Modelling AMOS 17 is a WYSIWYG program.

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Appendix A: Exploratory Fieldwork Case Study

Research Note: The presence of stigma amongst users of the MMORPG RMT: a hypothetical case approach.

Abstract

In those Massive Multiplayer Online Roleplay Games (MMORPG's) in which the Real Money Trade (RMT) is specifically prohibited by the End User License Agreement (EULA) & Terms Of Service (TOS) researchers should be aware of the impact of their work into potentially sensitive topic areas, ones in which *"there are potential consequences or implications… represented by the research"* (Sieber & Stanley, 1988, p49). If these users of the RMT secondary market feel they are a stigmatized community this potentially impacts directly on access to data, data integrity, data bias and the ability to disclose and disseminate back to the research community (Lee, 1993). A hypothetical qualitative case study approach is applied using three separate research elements to aid in the understanding of why prospective research candidates could potentially feel stigmatized.

Introduction

Researchers in the fields of nursing care (James & Platzer, 1999), prostitution (Sanders, 2006) and drugs usage & HIV Aids (Gonzalez-Rivera & Bauermeister, 2007), to use but a few examples, often find great difficulties in both acquiring information from possibly stigmatized individuals and dealing with the complex ethical issues of presentation of that resulting data. Similarly in the area of Real Money Trade (RMT) emerging evidence from investigations by Lee & Lin (2005) is that of not only of a developing subculture against the workers in the MMO RMT market, but also a recognizable community distaste, as described by Steinkuehler (2006), of the buyers from this market in games which specifically, though the EULA & TOS, prohibit such trading. Thus, while the research potential of large games is of *"incredible power and value*" (Castronova, 2006b, p183), an active and ethical researcher in this field, applying any kind of primary data collection method, needs to consider the impact of these possible stigma effects on both their participants and their results.

In many ways, researching the individuals who participate in the RMT market is potentially research which *"…poses an 'intrusive threat', dealing with areas which are private, stressful or sacred"* (Lee, 1993, p4) Researchers should be aware that the impact of any *"threat of sanction"* (English, 1997, p31) which participants may be concerned about upon their results. In MMO

games that prohibit RMT in their EULA & TOS these concerns may manifest as fears over the safety of their account if their *"deviant activities"* (Lee, 1993, p6) are revealed. Moreover, as found by Payne et al (1980), participants could manifest a *"fear of scrutiny"*, if they identify or judge the researcher and the investigations outcomes to be *"explicitly seeking discreditable information"* (Lee, 1993, p6). In the RMT context, with the view being that *"MMORPGs are in essence reputation games"* (Ducheneaut, Yee, Nickell, & Moore, 2006, p7) these concerns could create fears that the research may decrease their reputation, perhaps considerably, by identifying them, or their social groupings (guilds, corporations & so forth), as users of a perhaps stigmatised RMT market.

There are issues though in claiming unilaterally that a stigma exists and has a direct impact on research quality, even when dealing with subject matters where stigma is an acknowledged issue. For example, Cochran (2001) describes how research into gay & lesbian mental health is usually a difficult and problematic area because of stigmatization, however, use by researchers of settings in which homosexuality is more accepted such as *"gay pride events, music festivals, gay social clubs, gay bookstores, or gay bars"* (p933) can provide greater access, but potentially, research bias. Researching the effect of *"sexual stigma"* (Herek, 2004, p14) in a gay bar in San Francisco will inevitably give rather different results than researching the same issue with a conservative church group in the American Mid-West. In much the same way, there exists within the users of the RMT market the potential for social groupings in which the trade is either accepted or even encouraged. Indeed, as discussed in Taylor (2006, p4) some individuals can be quite open about their sales of characters while, in the same game, Everquest, *"Ebayers"* (Taylor, 2006, p130) can also find themselves marked out as players who have *"no real games skills and have not 'paid any dues'"* (Taylor, 2006, p130) Potentially, perhaps amongst virtual world users who conform to Bartle's (2004) *"Killer"* (p128) player archetype, these types of activities could be the norm, even celebrated, and perhaps there is no stigma attached at all. The status of stigma in MMO games which specifically prohibit the RMT is hence ambiguous, and consequently investigation of this status is of interest to any researcher in this area.

Method of Analysis

Emergent evidence by researchers into such MMO-games as World of Warcraft (Taylor, 2006) and Lineage (Steinkuehler, 2006) has already shown distinctive elements of stigmatization of users by other users, these stigmas being on such issues as age, race & playing ability. Thus this article will examine, in a hypothetical qualitative case study, the current literature for

evidence of stigma effects in synthetic worlds regarding the RMT market, using Link & Phelans (2001) *"stigma components"* (based on Goffman's (1963) seminal work) as a framework for identifying stigma in the RMT literature, and explaining the types of stigma which appears within communities. The results of three pilot studies are presented, each of which has attempted to gather data on RMT, and each of which having methodological issues when the effect of stigma is considered. To add rigor and reliability to these findings, field evidence, published theoretical literature and previous studies in this area will be triangulated to find convergent themes. Emerging issues will then discussed with suggestions made as to guidelines to be considered for future researchers in this area.

This study draws upon the evidence of three separate field investigations into the RMT market, each of which uses a different method and sample population. The first method of analysis used was a survey of 162 final year university students at Newcastle Business School, who as part of there dissertation preparation sessions, were asked to review and critique Lee & Lin's (2005) paper on stigmatization of RMT workers. Class discussions then occurred both on general analysis of academic papers, and also the RMT and their feelings towards it. A questionnaire was then given to the students to survey their overall responses, the data collected being both qualitative (feelings and opinions) and quantitative (age, sex, etc) in nature. Table 1 below summarises some of the attributes of the participants, with the majority (98%) of students surveyed being in the 20-23 age range. A wide mix of nationalities was present in the sample with Russian, Thai, Malay, Chinese, Vietnamese, German and British students, all of whom were studying an assortment of Business Studies, International Business or Finance & Investment Management.

Male	98				
Female	64				
Age range	20-34				
	Yes		**No**		**Total**
	Male	**Female**	**Male**	**Female**	
Ever played an Online Computer Game	54	22	44	42	162
Specifically identified an Online Game by Name/Keyword	30	6	12	6	54

Table 1: Attributes of questionnaire respondents

Of the replies, only 46% of students had played an online game before, the majority of the participants having never played one, with the subject of the

RMT being completely new to them. Even some those students who had never played an online game before were still able to identify specific names of games or keywords though (i.e. “Warcraft”, “Everquest”, “Second Life”, “MMORPG”, etc) with 33% of the sample population being able to do so.

Though in itself this investigation conveys a number of interesting quantitative results, it quickly became apparent during the data collection period that the qualitative information coming out of both the classroom discussions and the discussion parts of the questionnaire were of great value too. For example, in the classroom discussions it emerged that, for the majority of women participants who had heard of an MMO game, it was mainly because their partner played one. Indeed a significant discussion occurred amongst a number of the women who termed themselves *“Warcraft Widows*” or “*WoW Widows”* and on discussion tables which were mainly women, negative discussions regarding impact of game playtime (of any computer game/console type) on relationships were the norm. In contrast the male participants mainly discussed their own experiences of playing these computer games and the functionality and/or perceived superiority of one game over another. Certainly these discussions produced such a wide variety of exchanges that future investigations of a similar nature will now be conducted using tape recorders for each discussion table to avoid further *“data slippage”* (Oppenhiem, 2003, p262).

Inherent biases are apparent within this single investigation however. Though the age ranges of the participants is similar to that found in of other investigations of MMORPG players, most notably Yee (2006), the students themselves, with their business orientated background, could plausibly all be more willing to accept the RMT as business entrepreneurship than another group of subjects. Broadly the subjects responses indicated a bias towards an economic standpoint on the issue; *“demand creates supply”*, as one student succinctly concluded on their questionnaire. Thus the value of applying Yin’s (2003) principles of data collection, most significantly *“use multiple sources of evidence”* (p97) to provide a convergence of data was of utmost importance. This planned convergence also assisted in addressing validity and reliability issues within the presented case itself, with Figure 1 below adapting Stake’s (2004, p446) and Yin’s (2003, p100) frameworks to display how this case study addresses these issues, displaying both the internal and external data sources which are incorporated in this case.

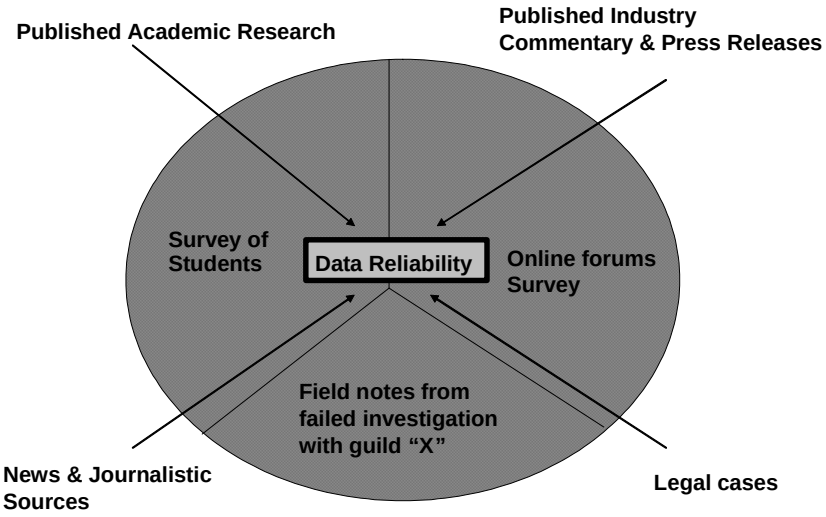

Figure 1: Planned convergence of data

The second method of investigation applied a Netnographic (Kozinets, 2002) approach to data collection. Unfortunately, the formal *"virtual community*" (Kozinets, 2002, p61) (i.e. the games company's own online forums), for games with prohibit in-game asset sales are usually inaccessible to open research on virtual currency, due to the nature of the discussions contravening the terms & conditions of the forum usage. Thus this research applied the principles of Catterall & Maclaren (2001, p231) in attempting to find an appropriate online community to gain *"cultural entrée"* (p231) to. This involved a long stage (May 2006 to October 2006) of *"lurking"* (Catterall & Maclaren, 2001, p231) on a number of online message boards to find one which best fitted Kozinets's (2002) general guidelines on suitable researchable communities.

> *"In general, online communities should be preferred that have (1) a more focused and research question-relevant segment, topic, or group; (2) higher "traffic" of postings; (3) larger numbers of discrete message posters; (4) more detailed or descriptively rich data; and (5) more between-member interactions of the type required by the research question."* (Kozinets, 2002, p63)

The lurking activity served a specific purpose in this selection process *"Lurking is important to learn the rules or norms of the community"* (Catterall & Maclaren, 2001, p231) Hence, in this investigation, identification of an open forum were these potentially controversial discussion threads would not be instantly locked or deleted (and thus valuable data instantly lost) and that the online community would be willing to contribute was imperative. This

investigative phase finally led to the choice of the “Video Games Open” forum of RPG.net as a suitable venue; a well travelled online community site with a specific video games board and over 37,500 members (RPG.net, 2007).

It should also be specifically noted that, despite the name of the board, field notes from the lurking investigative phase showed “Video Games Open” forum participants displayed a very limited interest in roleplay aspects of the variety of video games they played, a predilection which was noted at this phase as possibly having, if present, a potentially significant bias on participant’s feedback.

In November of 2006 a forum post was made with a five open ended questions identifying clearly; the researcher, the ethical guidelines the researcher was operating under, the researchers credentials and the researchers private e-mail address (if the participants wished to reply anonymously). These processes being seen in Netnography as crucial in *“building trust”* (Catterall & Maclaren, 2001, p231) with the researched online community. The post elicited 25 responses from individuals on the forum boards and 6 private e-mails over a period of 3 days. Discourse analysis (Potter & Wetherell, 1987; Fairclough, 1990; Hine, 2000) was then used to dissect and analyze the responses.

An e-mail received during the RPG.net investigation lead to the final unit of field analysis used by this case. One of the respondents was very interested in further participation in research into virtual currency and offered to talk to their guild (a social construct/grouping in the World of Warcraft computer game) about it. After a number of e-mails with the appointed leader of this guild, access was granted to the guild’s private (i.e. not usually accessible on the internet) forums. There then proceeded to be a protracted discussion regarding the methods of dissemination of the results of this investigation by the guild members by e-mail followed by a number of limits being set on the data usable by the study (most notably no use of nationality, end-game progression, number of character class types, etc).

Given the degree and scope of the limitations, and considering the consequent impact on reliability and external validity, the researcher at this point requested that, to confirm existence and legitimacy, his PhD supervisors and his external supervisor could have access to the data. This request led to an immediate withdrawal of consent to use discussions which had occurred and subsequently, contact. Hence this “failed” investigation is based on the researchers field notes of the initial contact only and not the subsequent (and rather fascinating) discussions with occurred regarding the

RMT market, and limits itself to outlining the rigorous lengths the guild and its members were willing to go to to protect their anonymity and reputations.

Case

Hypothetical case studies are used in a number of fields, from drug research (Soller, 2004) to construction (Wolford, 1996), economics (White, Abboud, & Holt, 2003) to law (Crutchfield, 1996), to give but a few examples. They are used to aid in objectivity, and are from the orientation of *"getting to why"* (Soller, 2004, p159) without overt over-reliance by the researcher on single incidents or cases. Consequentially, in an examination of stigma effects, with the ethical consequences and impacts to be considered, this more objective approach has been applied.

In essence then, John Doe is our case study. John Doe (though potentially Jane too) is the hypothetical research subject that an active researcher in the RMT area can interview, survey, or use any of a wide range of methodologies (qualitative or quantitative in nature) to gain a better understanding of why John uses the RMT market. Indeed, researchers would be interested in not only John, but also in all the other John's too. Unfortunately there are potentially good, self interested, reasons why John may have no interest at all in participating and contributing.

Intriguingly, studies into stigma and the effects of stigma have thus far, despite a *"profusion of research"* (Link & Phelan, 2001, p363) into the area, been rather vague on the definition of the concept (Stafford & Scott, 1986). Goffman (1963, p3) described stigma as an *"attribute which is deeply discrediting"* that affects the perception of a person *"from a whole and usual person to a tainted, discounted one*". Though some later studies focus less on the attribute, but on the social norms themselves, with stigma being *"a characteristic of persons that is contrary to the norm of the social unit"* (Stafford & Scott, 1986, p80). Conversely some conceptualizations examine not the norm, but the act of stigmatization itself as being core to the definition of stigma, with it being a *"social identity that is devalued in a particular social context"* (Crocker et al, 1998, p505).

> *"These definitions share the assumption that people who are stigmatized have (or are believed to have) an attribute that marks them as different and leads them to be devalued in the eyes of others. Stigmatizing marks may be visible or invisible, controllable or uncontrollable, and linked to appearance (e.g., a physical deformity), behavior (e.g., child abuser), or group membership (e.g., African American). Importantly, stigma is relationship- and context-specific; it*

> *does not reside in the person but in a social context."* (Major & O'Brien, 2005, p395)

In contrast, such is the overlap between the concepts of "stigma" and that of the act of stigmatization, "discrimination", that effort has been made to academically differentiate what is seen as the cause from the effect (Sayce, 1998). Fundamentally, *"discrimination focuses the attention of the research on the producers of rejection and exclusion"* (Link & Phelan, 2001, p366), while stigma research is more concerned with the resultant effects. However, it would be difficult though to understand John Doe, our subject, without understanding the external pressures which may affect him/them.

Following from Goffman's (1963) observations that stigma is a relationship between an *"attribute and a stereotype"* (p3) this study examines John Doe though the lenses of Link & Phelan's (2001) subsequent conceptualization. Their theoretical framework identifies four main interrelated components which are subsequently dependent and indeed *"entirely contingent"* (p367) on the ability or power to stigmatize. To contextualize these concepts, for the setting of John Doe and his use of the RMT market, this study focuses on whether or not, firstly, do distinguishing and labeling differences occur which could separate John from the rest of the player population. Furthermore, do these labels then link with either stereotypes or negative attributes which socially devalue John, leading to a social separation of "us" (who don't use the RMT market) and "them" (who do). The final component being, does this separation process lead to an experience of status loss and discrimination within the social in-game context and possibly beyond. Lastly, as this potential stigmatization is entirely dependent on the ability of other players to exercise a type of social power, do they have that power?

> "*Finally, stigmatization is entirely contingent on access to social… power that allows for the identification of differentness, the construction of stereotypes, the separation of labeled persons into distinct categories, and the full execution of disapproval, rejection, exclusion and discrimination*" (Link & Phelan, 2001, p367)

In the computer game context, with the ability to change identity (with potential costs) and re-emerge as a "new" individual, does this social power exist? Indeed, consideration should be given to the issue that it is possible that all of the potential cognitive components of stigma are present in John's situation, but, with a lack of social consequences and costs, a stigma may not exist. (Link & Phelan, 2001, p376)

Component 1: Distinguishing and labeling differences

Identity in online virtual worlds is a complex issue if you consider the separation of the attributes of the online avatar which everyone sees from the important anonymity which *"separates the real you from the virtual you*." (Bartle, 2003, p174). As Castronova (2005) outlines, online avatar attributes; *"skin color, facial hair and clothing*" (p32), can be fully player determined at character creation and possibly changed later on. Indeed, one of the very design premises of most MMORPG games is that all players have equality of choice at character generation (Bartle, 2003).

If then, the distinguishing differences which you dislike can be completely avoided and the typical differences which might create labeling, *"skin color, gender"* (Link & Phelan, 2001, p367) are choices, not predetermined, then easy stereotyping through observation by players is extremely problematic. John Doe's online avatar may in-fact be female as *"cross-gendering is incredibly common"* (Castronova, 2005, p109) thus gender sexual discrimination in an MMORPG environment can lead to a multitude of unexpected consequences. It is clear then, that in such an environment, being able to identify a player as a RMT market user is much more difficult than simply looking at him. Though, emergent evidence from Steinkuehler (2006) would indicate that the RMT market producers are a completely story altogether in games such as Lineage, with potentially players like John Doe getting caught in the community cross-fire.

> *"Girl dwarves are now assumed to be adena farmers because fewer and fewer leisure gamers opt to play that class anymore ….leaving an increasing percentage of those remaining as adena farmers. In essence, there is now an unfortunate feedback loop such that, because other players assume all girl dwarves to be farmers, only the farmers care to play them. Girl dwarfs are now reviled by many players, systematically harassed, and unable to find anyone that will allow them to hunt in their groups, unless of course someone already knows the "person" beneath the "pigtails." In a way, it seems as if a whole new form of virtual racism has emerged, with an in-game character class unreflectively substituted for unacknowledged (and largely unexamined) real-world differences between China and America, such as economic disparity, cultural difference, language barriers, and discrepant play styles"* (Steinkuehler, 2006, p208)

With similarly "Hunters" being the class of choice in the World of Warcraft MMO and certain combinations being easily identified by players for stereotyping and labeling.

> *"The macros for World of Warcraft, for example, control a high-level hunter and cleric[1]. The hunter kills while the cleric automatically heals. Once they are fully loaded with gold and items, the farmer who's monitoring their progress manually controls them out of the dungeon to go sell their goods."* (Lee, 2005).

Conversely, while the active RMT market creators are distinguishable, the market users are not. Indeed, as the following World of Warcraft players described, positive benefits can potentially come as a direct result of the purchase, not a negative ones.

> *"My guild were doing a lot of PvP and I only had a normal mount not an epic one so I was always too slow. They bitched at me for letting the guild team down, but I didn't want to spend a week or so not PvP-ing and just grinding for my mount. One day I bought a load of gold from a website and with 20 minutes of hitting in my $40 on the credit card I had my epic… My friends stopped bitching! …. They've never asked me how I got the cash."*
>
> Participant 22, Online Forums Survey, Private E-mail Reply

> *"We use consumables- like a LOT when raiding. I don't wanna have to farm for hours to get the mats so I just bought the gold to get the stuff off the AH. My guild didn't ever ask me how I always had my pots, but they would have screamed at me if I hadn't. Farming 3-4 hours a week for consumable mats is just stupid"*
>
> Participant 24, Online Forums Survey, Private E-mail Reply

Thus, John Doe as a user of the market can enjoy great anonymity in his purchase, and may indeed gain immediate in-game advantages in his cash expenditure, with little risk of exposure. Indeed, of the six private e-mail replies to the online forums survey, all of them cited immediate or lasting benefits that they received in exchange for their expenditure, with little to no questions asked as to how they gained these benefits, and there being no obvious indicator that they had participated in the RMT market.

Many human differences though are similarly not so obvious, and are indeed the *"product of a social process"* (Link & Phelan, 2001, p368) rather than a specific attribute like colour or gender. Habitual gamblers, users of prostitutes, drug takers, to give but a few examples, are all stigmatized groups to one degree or another (Preston et al, 1998; Pheterson, 1993;

[1] As a matter of clarification, World of Warcaft's clerical healing class is actually named "Priest" in-game.

Skinner et al, 2007) yet their stigma is also not obvious. It is consequentially the "*social identity"* (Major and O'Brien, 2005, p393) which players create and interact with which creates the potential for interactions, and for John Doe, these MMORPG games are all about social interaction, status and, importantly, personal reputation.

> *"To begin, it is important to mention that MMORPGs are in essence reputation games - an avatar wearing powerful items, for instance, is essential to the construction of a player's identity. It broadcasts the player's status to others and rewards him or her with a sense of achievement."* (Ducheneaut, Yee, Nickell, & Moore, 2006, p7)

It is thus usually John's choice to enter into a process of self disclose which determines if his participation in the RMT market is noticed or not, an act very similar to other non-obvious stigmatized groups (Herek, 1996). This self disclosure is often though not an "all or nothing" deal in a very similar way to "coming out" literature regarding sexual identity (Mosher, 2001). As one respondent commented:

> *"I've chatted to a couple of my close friends in the guild about it. We've even talked about prices and the best place to buy. I'd never tell anyone else in the guild though."*
>
> Participant 25, Online Forums Survey, Private E-mail Reply

Thus if John Doe wishes to self disclose, with all of the possible stigmatization issues this could entail to his personal status and reputation in the game, and the possibility of actions by the games operators, this is usually to a very specific *"audience"* (Mosher, 2001). Alternatively, it could also be were John simply doesn't feel that the status of his online identity or the reputation it holds is that important at all.

> *"At the end of the day it's a computer game, what do I care what someone else thinks of me? It's hardly the end of the world!"*
>
> Participant 22, Online Forums Survey, Private E-mail Reply

As Mosher (2001) describes though, these *"audiences"* (p168) can have a number of levels. In John's case, he may see his close guild friends as a completely different *"audience"* than his real-life friends or his guild member friends, or the acquaintances he has and so forth. Certainly in the process of attempting to investigate a guild for this case study it become clear in the initial groundwork phase that their audiences where both wide and varied, but mostly concentrated on their server and possible negative impressions from other players on their server towards their achievements where of great

concern. This is perhaps an indication that those with the most invested in the creation of an online identity, and reputation, in this achievement & image focused virtual environment (Ducheneaut et al, 2006) have the most to be concerned about, as one respondent replied:

> *"The communities of these games looks down on people who didn't put the same effort they did into getting the stuff they have, and gold is no different"*
>
> Participant 6, Online Forums Survey, Forum Respondent

To summarise then, John Doe's avatar is "born" into a virtual world where all players have equal choices at creation (Bartle, 2003) and the very essence of the game is to provide John Doe with a social, achievement based, virtual world for him to interact with and enjoy (Ducheneaut et al, 2006). John seems quite able to transgress the rules of this achievement culture, and indeed the rules of the games designers, by using the RMT market, and be quite able to remain anonymous in doing so. Indeed, the most likely route that John Doe is ever found to be using the RMT market is if he *"outs"* himself to an *"audience"* (Mosher, 2001, p168). It is seemingly only through this self disclosure that Link & Phelan's (2001) labeling and distinguishing could start to occur. Though, as with a number of other similar stigmatized groups, there is the potential that John Doe might feel safe in this self disclosure to one audience and this information could spread to audiences he hadn't wished to hear, or John Doe could have misjudged his audience, and people he previously thought would be accepting of this practice in actuality have different reactions than expected (Mosher, 2001). However, there does seem to be differences in attitudes towards the types of RMT which is occurring as well:

> *"Tends to be more stigma attached to buying a high level character than to purchasing in game gold, as the former can often result in a high level character who's utterly clueless on how to play"*
>
> Participant 19, Online Forums Survey, Forum Respondent

Component 2: On associating human differences with negative attributes

Once John has been separated from the rest of the players, he then needs to contend with the next component of stigma; the linking of his actions with negative stereotypes or attributes, an association *"central to the conceptualization of stigma"* (Link & Phelan, 2001, p368). Interesting in the more generic survey of University students only 22% overall of students gave

negative statements regarding their acceptance of the RMT, with some comments of *"Unhonest"* within the replies, but also evidence of more vehement opposition to the RMT trade; *"Isn't it fraud?"* as one respondent enquired.

	Played Online Game Before		Never Played Online Game			
	Male	Female	Male	Female	**Total**	**%**
Acceptable Practice?						
Positive Statements	42	8	34	20	104	64
Negative Statements	12	4	8	12	36	22
Undecided	0	8	2	8	18	11
Blank	0	2	0	2	4	2
Total	54	22	44	42	162	

Table 2: Analysis of qualitative replies in discussion question of whether the RMT was an acceptable practice to them

This data (Table 2 above) displays though, that within this particular grouping, the RMT is overwhelmingly an acceptable practice to participate in; a stark contrast to the online forums survey. 64% of students coming out with a number of reasonings as to why the RMT market was acceptable with comments of:

> *"Yes, if someone wants it, why not? It is bad to sell cigarettes as well but it as a good business. So why not sell in-game assets"*
>
> Survey respondent

> *"It's a personal thing, doesn't affect anyone else- its just a virtual game- not life and death. If people want to pay- let them."*
>
> Survey respondent

> *"I don't believe that there is anything morally or ethically wrong.."*
>
> Survey respondent

However, of interest, it was the 12 male participants who had played online games before from whom the most negative comments and connotations came. With some constructing coherent arguments about the trade "*downplaying the sense of achievement*" with, at the other extreme, some responses of *"Sick people"* and similar. Males also seemed to be the most decided on the issue, with the vast majority of respondent's undecided on the issue being women. It would seem that if John Doe was a University student amongst this research group, and wanted to talk about his online RMT dealings, on average, he would find a great deal of acceptance.

The online forums survey painted a very different picture though. Of the 25 respondents on the publicly available forums, all but one was certain that a stigma existed in buying virtual currency, and that it had negative labels attached to it. Interestingly, the private e-mails received also acknowledged a stigma, but mainly amongst the "*general population*", with one respondent replying:

> *" …people feel that since they are working 40-50 hours a week instead of sitting at a computer for that long, that they should be able to exchange one for the other to keep things fair between themselves and the college students."*
>
> Participant 9, Online Forums Survey, Forum Respondent

From the majority of the online forums respondents though, sometimes quite blunt labels were attached to those who used the market:

> ***"****Impatient lowlife"*
>
> Participant 1, Online Forums Survey, Forum Respondent
>
> *"Tacky, and at least bordering on unsportsmanlike"*
>
> Participant 7, Online Forums Survey, Forum Respondent
>
> *"Despicable cheating"*
>
> Participant 15, Online Forums Survey, Forum Respondent

It is clear from this rather ambiguous evidence so far then that easy categorization and labeling of John Doe by other people is selective in nature, not the *"automatic"* (Link & Phelan, 2001, p369) responses which can occur in some other stigmas. Many stigmatized groups though exhibit the same issues as these. Just to pick one, homosexuality, for example, this can have a wide range of responses in various different audiences (Mosher, 2001).

Perhaps then Crocker et al's (1998) definition of a stigma as an *"attribute or characteristic that conveys a social identity that is devalued in a particular context*" (p504) which is of most interest here, with the context in particular being the in-game response to John Doe and his actions. However, this context, which the internet and online experience the average gamer is exposed to create, is a possible contributory factor to RMT market usage; despite stringent EULA & TOS by companies still being in place. As Castronova (2006a) explains,

> *"In most games today, for example, one cannot visit a fan site related to the game without seeing multiple banner ads for gold sales, and all casual conversation about the game, both inside and out, presumes that gold sales are a way of life. It has become normal within the culture of most games that there is a subgame involving commercial transactions with third parties. At such levels of presence, it may seem normal to most new players that one uses RMT in order to advance in the game. Rather than appearing to be a violation of the rules of the game – which it is, under the terms of service – RMT appears to be a normal part of game play"*(p57)

Conversely though, while the online RMT market attitude John Doe and other players may be exposed to is increasingly becoming hazy in nature, the computer games companies who prohibit in-game asset trading are still blunt with their message.

> *"In our continued efforts to combat cheating in World of Warcraft, more than 105,000 accounts were closed and over 12 million gold was removed from the game economies in Europe, Korea, and the US in the month of November."* (Blizzard Entertainment, 2006)

With players strongly encouraged to turn in those they suspect of using this trade.

> *"Many account closures come as the direct result of tips reported to our GMs in game or emailed to our Hacks Team by legitimate World of Warcraft players. If you suspect that a World of Warcraft player is using an illegal third-party program to farm gold or items, or is otherwise violating our Terms of Use, please report the suspected infraction via one of the means listed above. All reports will be investigated,"* (Blizzard Entertainment, 2006)

This type of authoritative directive would seem to be trying to create a situation where RMT intolerance is indeed prized by the company, and encouraged, so that in much the same way that someone breaking a law might be categorized as a "wrong-doer", John Doe, our theoretical buyer of virtual currency, is quickly fully cognizant the error of his ways. Indeed, academic evidence of previous studies and investigations into the main criticisms leveled against the RMT market (see Lehdonvirta, 2005a, p2) would seem to indicate that some players have a wide variety of concerns. These range from claims of breaking the *"magic circle"* (Bartle, 2004, p13-16; Castronova, 2004, p192-196) of the immersion element of the game, or similarly the game achievement culture (Bartle, 2004, p16; Burke, 2002, p31) by bringing out-of-game advantages a player may have (in this case; excess

real world cash) to bear and devaluing other players perceived time-spent-value by doing so. As one survey respondent replied:

> *"I'm certain there exists a ton of rationalizations: they will also all boil down to 'I'm more important than the other people'"*
>
> Participant 15, Online Forums Survey, Forum Respondent

The purchases being outright cheating is also a considered perception (Bartle, 2004, p7; Burke, 2002, p31; Taylor 2002, p231), with it *"common for opponents of buying practices to make analogies to sports and board games: e.g., that nobody would play Monopoly if you could buy Boardwalk with real money"* (Lehdonvirta, 2005a, p2).

> *"I would NEVER buy virtual cash for a game. It's cheating, and it ruins the game for everyone, not just me. You are ruining the game for other people"*
>
> Participant 4, Online Forums Survey, Forum Respondent

Furthermore, as discussed by Salen & Zimmerman (2004) some users simply see the "rules of the game" as critically important, and breaking those rules, like the EULA & TOS is something which simply should not be done.

> "*Rules are clearly presented, and people who break them forfeit their access to the game."*
>
> Participant 7, Online Forums Survey, Forum Respondent

Returning to John Doe then, the outcome of him being distinguished from the rest of players for his RMT activities would seem to completely dependent on the nature of the cognitions other players employ and the contexts they are in, as with a wide range of stigmas (Crocker et al, 1998). Certainly there seems overwhelming evidence, from both the research conducted and previous studies, that some people would immediately find John's actions to be something they would automatically label negatively, and indeed, they are strongly encouraged to do so by the games companies themselves. Who those "some people" precisely are, why they are so adamant in their beliefs, and any factors which may affect those beliefs, is unfortunately an under-researched area in the contemporary literature. Which, considering Castronova's (2006a) description of how the users are increasing exposed to the RMT marketers advertising, would provide for an interesting longitudinal study into any potential changes in attitudes John Doe might be exposed to as his time in the game progresses.

Component 3: On separating "Us" from "Them"

The third component of Link & Phelan's (2001, p370) conceptualization is when the negative social labels directly separate the discriminator from the discriminated. Many examples though history have shown us time and time again how immigrants have been socially labeled negatively, and "them" and "us" situations start to occur (Morone, 1997). Even in less obvious areas, like mental health for example, separations of "them" and "us" can be stark.

> *"A person **has** cancer, heart disease, or the flu- such a person is one of "us", a person who just happens to be beset by a serious illness. But a person **is** a 'schizophrenic'. "* (Estroff, 1989, p189)

Has, by John Doe's perceived actions then, he been separated by his labelers into another category? Indeed, does this separation, like with a number of stereotypes and categorizations, then lead to the possibility of *"all manner of bad characteristics"* (Link & Phelan, 2001, p370) being attached to John? Is he also now seen as a bad player, a useless player, a person who you cannot trust in-game? A potential 'ninja'?

> "*..when I'm in an in-game situation in which goldselling services are offered and I can hear the reactions of others, the general attitude seems to be one of mild contempt towards people who by in-game money."*
>
> Participant 9, Online Forums Survey, Forum Respondent

In the questionnaire of university students there seemed clear evidence from the discourse analysis that those who expressed negative statements (22%) also seemed to attach strong negative labels to the users of the RMT, with the majority (61%) of the negative respondents using possibly devaluing statements such as *"what a useless waste of life and money: idiots!",* and, "*sad guys who should get a REAL life*".

This is reinforced by analysis of the respondents to the online forums survey. Of the 25 forums survey respondents, 12 were overwhelming negative regarding the RMT, with these 12 displaying a great deal of labeling and separation contexts. Clearly for those respondents there was "them" who used the RMT market, and "us" who revile it. These respondents when asked if they had ever considered buying virtual cash were also the most vehement in their distinctions between themselves and those who did buy.

> *"It is despicable and I hate it with a passion."*
>
> Participant 1, Online Forums Survey, Forum Respondent

Tentatively then, we can logically suggest that this differentiation is intimately connected to those who have strong feelings towards this market. For our RMT user, John Doe, reactions from those not connected to online games would seem to be less pronounced than those who are associated. Furthermore, from the admittedly limited evidence available, it would seem that those who already have negative feelings towards the RMT market have a much more pronounced negative view of the users of this market and a clearer distinction between their "normal" activities, and people like John Doe's.

This logical line of reasoning is not without similarities in many other stigmatized groupings. As Gomez & Trierweiler (1999) discuss, *"similar themes across the reported experiences of historically stigmatized groups"* (p1900) exist, with many times those closely involved in the specific context being the most fervently opinionated on the subject. For example Green et al (2005) describes how in disability discrimination *"Individuals with disabilities may also be their own harshest critics."* (p207). Indeed, as a classic study by Strong (1946) suggests, in colour discrimination, the intimate nature of the knowledge of the situation by people directly concerned ,and affected in the context, can create some of the most profound social separations and labeling (though, perhaps, the study's wording of that finding is best left to a past time and era).

Component 4: Status loss & discrimination

Largely due to the anonymity of virtual worlds and the separation of avatar identity from real world persona, the context of any potential status loss or discrimination which could occur because of actions in-game would generally be presumed to remain in-game. However, as Taylor (2006) relates, the social relationships which players build and developed can often lead to both out-of-game meetings, out-of-game friendships, even potentially, out-of-game relationships. Thus consideration should be given to whether John Doe is not only affected in an internal game environment, but also that he could be externally affected.

In the online forums survey it was clear that player reaction does occur, as one player commented:

> *"I know of people who've been booted out of guilds in WoW for it"*
>
> Participant 17, Online Forums Survey, Forum Respondent

Additionally, there is the institutionalized response from the games company who prohibits in-game asset trading who can possibly enforce their

sanctions, though it is generally the RMT sellers & farmers and not the players (i.e. paying customers) which games companies penalize:

> *"Please understand that if you do purchase in-game property from sellers on eBay and personal sites, we may temporarily suspend your account, and at the very least, delete the offending items."* (Blizzard, 2005)

Potential status loss or discrimination due to stigma though presumes that status value exists, or indeed the player is concerned regarding this status value. This in-itself is a large presumption. As Malaby (2006) discusses, value in an MMORPG is made up of a number of attributes, including the market, social and cultural capital which a player creates as he progresses within the game. Of these factors which could be affected by external parties, it is mainly the social *"connections"* (p154) and cultural *"credentials"* (p157) John Doe develops, which would seem to be at the most risk of exposure, though potentially, if players refuse to trade with John because of his actions, his market capital could also be exposed.

The risk to which these various types of capital are exposed is logically linked to the investment (in both time and efforts) that John Doe has actually placed into achieving and creating this capital and the importance he places on retaining it. This importance, this personal attachment, to the value we would deduce would be causally connected to his attitude towards the game. It is quite possible, if we take Bartle's (2003) player types, *"achiever"*, *"killer*", *"explorer"* and *"socialiser*" players, that each may examine this risk in a different way. However, Bartle's descriptions of the typologies (p130) could be interpreted in a number of ways. For example, a player who is a *"killer"* type could possibly not care at all what others think, alternatively, another *"killer"* type player may set great stock about bragging about his achievements to other players. Consequentially this investigation does not attempt to identify which player type may put a greater importance on in-game value, indeed, if Lehdonvirta's (2005b) RMT perception analysis of Yee's (p6) more finely graded topology is used as a starting point, such an identification would be a substantial work in itself.

This study thus limits itself to the logical progression that those players who have purposefully developed and fostered in-game social or cultural value (Malaby, 2006) are those with the most to risk from status loss and discrimination though association with the RMT, whatever their in-game playing motivations. Thus if these players are exposed to value damaging effects such as the loss of contacts, social group membership loss, or damage to their credentials, then *"devaluing"* (Link & Phelan, 2001, p371)

could be taking place to create a stigma. For our John Doe, this leads to the possible inference that despite many respondents to the survey espousing:

> *"There is officially a stigma"*
>
> Participant 11, Online Forums Survey, Forum Respondent

There possibly only is a stigma if John Doe has immersed himself into the game he is playing to such an amount that the in-game values he has constructed are meaningful and perceived to be at risk. If he has not, then discussion of his RMT experiences and any subsequent exposure may have little threat or meaning to him, and he may be quite open to researchers.

The dependence on power

John Doe's ability to be stigmatized and discriminated against, in many ways, is fully dependent on the power he lets other people have over him. A situation which a number of stigmatized groups share, where the stigma is seen as an identity threat (Major & O'Brien, 2005). This identity threat stigma being based around the, *"extent to which stigma's effects are mediated through targets' understanding of how others view them*" (p397)

If John Doe has "bought-into" the MMORPG achievement culture, he has invested in creating value in the world (in its number of forms), then he is potentially handing self relevant emotional and social power to those other players who have also similarly committed to this process. The extent to which this power can be wielded is however questionable.

Certainly institutional power, that of the computer games company to affect the player who breaks the EULA & TOS, is present and as Terdiman (2007) relates, can be used to dramatic effect. Few players who have invested in creating value in a virtual game environment would want to receive an e-mail like this:

> *"Access to this account has been permanently disabled for exploitation of the World of Warcraft economy or for being associated to accounts which have been closed for intended exploitation."* Terdiman (2007)

This institutional mechanism thus serves as an over-arching environment that can be applied against John Doe, with potentially other players identifying John Doe to the operators of this mechanism for investigation. This *"structural"* (Link & Phelan, 2001, p372) mechanism provides a setting where even if John Doe has little interest in how other players view him, any RMT activities which he discloses could lead to immediate and damaging

consequences to his ability to enjoy his virtual online experiences. In the forums survey the overwhelming response from players, 22 out of 25, even those who were otherwise accepting of RMT practices, were accepting of games company's responses in banning or suspending players accounts.

To use an analogy, John Doe's situation in-fact bares many resemblances to the situation that male homosexuals found themselves in the 1950's United Kingdom when laws were in place prohibiting their sexuality (Lent, 2001). In the 1950's many male homosexuals lived in fear of being accused of their sexuality and facing the structural mechanisms of the state (Bristow, 2007) Their activities thus needed to be covert, and secretive, leading to even further stereotyping of them and their actions (McLaren, 2002). In this situation many male homosexuals disguised their sexuality, and attempted to meld in with the rest of the population, and certainly limiting the knowledge of their sexuality to very limited "audiences" who they were sure they could trust. The fall out from them being "outted" by either themselves or another having the potential to be considerably damaging to their social value (McLaren, 2002).

Though this analogy can be picked apart on a number of levels what it does describe is a similar dual level identity threat which is similar to the one John Doe has. On one level John Doe's RMT activities can affect his in-game formed social & cultural value if disclosed to other players. However, potentially this could progress to the over-riding structural mechanism level if he is reported by another player for this activity, which has the potential for a complete closure of his ability to access the virtual world. The identity threat potentially leading to effective and permanent exile for the avatar John has invested in, indeed, from his chosen virtual world.

Conclusions

Analysis of Link & Phelan's (2001) stigma components in the RMT context has led to an ambiguous conclusion to the investigation. Is a research participant who buys in-game assets in a virtual environment in which such a trade in prohibited a potentially stigmatized person by other players? This potential stigma is logically power dependent on the player's view of their in-game values. Researchers though should not lose sight of the issue that the overarching institutional mechanisms are still in place, and whatever the players views are; this itself may be a powerful perceived threat for non-participation in research.

Moreover, it also leads us to the tentative deduction that those players who have invested considerably in creating value in these virtual worlds, and who are users of the RMT, may be the most unwilling to participate in research

which they view as a potential threat. For active researchers this poses a number of both ethical and practical questions which should be considered at the beginning of the research process.

In many ways the forums survey used in this investigation displays many issues within it to do with possible stigma effects. Firstly of the replies, 25 on the forum board and 6 by private e-mail, not one of the forum board replies were positive, and all of the private e-mails were either positive or neutral. Though a larger survey size would be preferred, this may be indicative of the overarching problem of using such discussion boards for research. Though the qualitative responses acquired were of great value, bias in the types of responses could be seen to be evident. With each respondent having to log into their forums account to respond, and their username being clear next to their post. Certainly a lack of privacy of views was evident.

Quantitative methods in which identity is concealed perhaps thus have a perceived threat advantage in RMT research. Nick Yee's frequent research surveys, *"The Daedalus Project"* (Yee, 2007), perhaps providing a good exemplar of best practice in this area. With the ethical guidelines these research surveys are being conducted under being made clear from the outset and the researchers credentials outlined.

For more qualitative research of the players who participate in the RMT considerable consideration (Lee, 1993) should be given to; the method of access to the population, the limits this method of access places upon the scope of the enquiry, the handling of potentially sensitive data & the methods of disclosure and dissemination of this data. With the impact of disclosure and the potential biases any stigma effects could have on the research findings being thoroughly examined.

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Appendix B: Exploratory Fieldwork Netnographic Approach

Grey market activity impairment of consumer perceived brand value & trust: the impact of MMORPG RMT

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Abstract

In those MMO games which specifically, through use of the EULA and TOS, prohibit the buying or trading of in-game currency for real currency, the ongoing customer decision to maintain paying their subscription and maintain their relationship with the product could conceivably be impaired by negative impacts of unwanted RMT activities. The paper presents findings of an exploratory interpretivistic netnographic pilot study modelled on Elliott & Yannopoulou's (2007) approach of examining the nature of product trust in an MMO context coming to three broad recommendations for managers involved in the industry.

Introduction

The concept of focusing on the customer relationship and building loyalty, perceived value and retaining the customers business is obviously not new, and is a self evident premise for many successful businesses. In contemporary business practice the product brand name & image is seen as vitally important in cementing that relationship, *"Brands tell us that Toyota cars don't break down, Nestle foods aren't poisonous, and Durex condoms won't split. Lifestyle doesn't come into it; these brands are essentially about trust."* (FT, 2007). Product trust though is personally constructed by the customer though complex interactions of personal experience, marketing imagery and social perceptions however *"trust is an elusive concept."* (Elliott & Yannopoulou, 2007, p988) in business. The issue of trust being far more complex when grey markets exist for particular products.

This paper is an exploratory study of the strategic management issues that business leaders of such companies as Sony and Vivendi Entertainment face in controlling, managing and/or manipulating the specific grey market that surrounds their online MMO-game branded product; the RMT grey market.

> *"Gray market goods are genuinely branded merchandise distinguished only by their sale through channels unauthorized by the trademark owner."* (Bucklin, 1993, p387)

> *"Gray markets are, in general, not illegal, as opposed to so-called "black markets", which contain stolen or counterfeit goods. Gray goods are not stolen and they are physically "genuine", but their distributions and marketing are unauthorized."* (Chen, 2007, p247)

Classic studies of grey markets have centred on the issue parallel importing and trademark infringements (Clarke and Owens, 2000; Cross et al., 1990; Gallini & Hollis, 1999; Inman, 1993; Palmeter & Remington, 1988) stemming from free-riding problems (Malueg & Schwartz, 1994). Most studies though are regarding tangible goods such as guns (Marsh, 2002), pharmaceuticals (Maskus, 2000) and Levi Jeans (Antia, Bergen & Dutta, 2004). The business world though sells goods which are also intangible in nature, for example, Antia, Bergen & Dutta (2004) discuss the grey market for satellite TV decryption access in Canada. The most discussed section of the intangible grey market literature though is regarding the internet and *"cyberspace"* (Zekos, 2002). Infringement of copyrights, trademarks and intellectual property by such companies as Napster (Langenderfer & Cook, 2001) & Youtube (Pike, 2007), show the difficulties that modern companies have in managing their digital property.

From the management perspective, the contemporary literature is filled with legalistic examinations, however *"the topic of managing violations is poorly documented."* (Bergen, Heide & Dutta, 1998, p157). Legalistic solutions to grey markets though are often fraught with difficulties due to

the international nature of the problem *"within the existing legal climate, eliminating the gray market through legal activities in the USA, Europe and Asia is almost impossible"* (Huang, Lee & Ho, 2004, p599), with studies by Alberts (1992), Chang (1993) Gallini & Hollis (1999) and Prince (2000) all echoing that sentiment.

Direct management related literature comes from examining the grey market issue as a product brand problem (Chen, 2007), proposing that the grey market may have direct impacts on product brand equity & value (Mathur, 1995). For example, grey market products which are purchased and then incur problems will probably have invalid warranties which can lead to customers perception of the company brand and product brand being impaired (Eagle et al., 2003). Additionally, by the reflexive nature of the brand name free ride (Tan et al.,1997; Keller et al., 1998) that grey marketers use, when the grey marketers promote their products, presumably on different value than the brand owner, the brand value message of the owner may be tarnished and/or confused (Eagle et al., 2003). This paper thus bases itself in the consumer side, demand side, product brand literature of grey market management given that:

> *"Understanding consumer attitude and thinking toward gray market goods may enable effective strategies for dealing with this problem to be discovered, given that consumers must choose between gray market and white market (authorized channel) products."* (Huang, Lee & Ho, 2004, p599)

While the intellectual framework this paper is operating in draws directly from the theoretical base of previously published research into grey markets and consumer behaviours within these markets, the RMT phenomenon has specific properties and contexts, the methods of control able to be applied by games companies being distinctive. For example, consumer product behaviour and product attitudes regarding the RMT are inter-related & reflexive with the *"virtual communities"* (MacInnes, 2006) surrounding the product. The paper presents findings of an exploratory

interpretivistic netnographic pilot study modelled on Elliott & Yannopoulou's (2007) approach of examining the nature of product trust in an MMO context.

A social & psychological approach to product trust

Elliott & Yannopoulou's (2007) investigation built on Luhmann's (1979) social theories of trust which proposes that *"are three modes of asserting expectations about the future based on personal experiences and cultural meaning systems"* (p989) Luhmann proposed that these three cornerstones are; familiarity, confidence and trust. Figure 1 displays Elliott & Yannopoulou's adaptation of these elements to the branded product purchase decision.

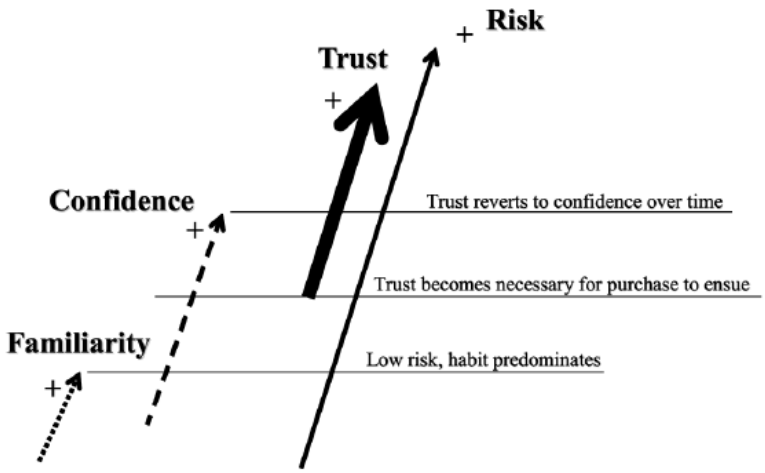

Figure 1

This adaptation was based on research on brand trust from Ring et al. (1980) and Aaker (1991) whose findings concluded that trust over quality and security was important to the strategies that a consumer employs when considering the product purchase decision.

> *"Thus, a strong brand is a safe place for consumers because it enables them to better visualize and understand the offer and face up with the uncertainty and perceived risk associated with buying and consuming a product." (Elliott & Yannopoulou, 2007, p989)*

This paper makes the logical progression from Elliott & Yannopoulou's (2007) deduction that if in the initial purchase product decision the brand dynamic between customer and product trust has a strategic relationship, then in purchases which have an on-going element (i.e. a subscription fee in the MMO context, though a utility bill is just as valid as an example) the nature of the branded relationship's components of familiarity, confidence and trust are equally valid in determining the customers willingness to continue to pay the on-going cost.

In the MMO context this on-going element creates a new dynamic to the "*dyadic relationship exists between consumers and brands"* (Elliott & Yannopoulou, 2007, p990). Customers have long associated personalities and human characteristics to branded products even if they are merely inanimate objects (Levy, 1985; Aaker, 1997). However, in typical MMO games usually there is an ongoing and near constant set of possible customer affecting changes going on with the purchased product itself (usually in the form of content patches, changes to specific characteristics of the customers avatar though game balancing etc) which can affect the trust and confidence a customer chooses to place in the product. Additionally these changes are being made by people (games designers) who the customers may assign personalities or traits to, usually, as research by Belk (1988) and Kleine et al. (1993) indicates, based on reflections of their own personality.

In those MMO-games which specifically, though the EULA and TOS, prohibit trading of in-game currency there is also an additional dynamic which affects the customer's perception of the product values which the product designers have attempted to establish. Academic evidence from previous studies and investigations has found a number of impacts on the customer experience of the RMT, these include claims of breaking the "magic circle" (Bartle, 2004, pp. 13-16; Castronova, 2004, pp. 192-196) of the immersion element of the game or similarly breaking the game achievement culture (Bartle, 2004, p. 16; Burke, 2002, p. 31) by bringing

out of- game advantages a player may have (in this case, excess real-world cash) to bear and devaluing other players' perceived time-spent value by doing so. The purchases are also perceived as outright cheating (Bartle, 2004, p. 7; Burke, 2002, p. 31; Taylor, 2002, p. 231), with it "common for opponents of buying practices to make analogies to sports and board games: e.g., that nobody would play Monopoly if you could buy Boardwalk with real money" (Lehdonvirta, 2005, p. 2). Furthermore, as discussed by Salen and Zimmerman (2004), some users simply see the "rules of the game" as critically important, and breaking those rules, such as the EULA and TOS, is something that simply should not be done.

Some companies have taken immediate steps to exert control over the impact these RMT activities have on their product. For example, Flying Labs Software launched their latest new product, "Pirates of the Burning Seas", on 11th January 2008. But only by 19th of January they where making statements to players regarding their management of grey market activity:

> "***Account Suspensions for Grey-Market Gold Transactions***
>
> *This evening, Flying Lab Software staff issued a series of permanent bans as a result of gold selling activities by players of Pirates of the Burning Sea. Additionally, 24 hour bans were issued on multiple accounts found to have participated in the transfer of this illicit gold. Please understand that we will investigate all reports of illicit transactions and we will following up with the appropriate disciplinary actions, which could include confiscation of the resources in question, and ultimately banning accounts that sell or buy these illicit resources. In the future, if you are approached by someone seeking to sell you gold, you are asked to file a support ticket by typing /support in game, or by visiting our support site. Customers are encouraged to share as much information as possible, including the characters name, the server where this occurred, the time of the incident and any links they*

> *may have shared with you during the solicitation. Flying Lab Software has developed a host of resources to help us identify these illegal activities as they occur, and we will take swift and decisive action to protect and preserve the economic features of our game."* (Flying Labs Software, 2008)

These actions have similarly been seen in companies such as Blizzard Entertainment and Sony Online Entertainment (SOE). However, this paper proposes that it is the customer's perceptions of the importance of this product effecting element which determines the impact it will have on customers perceived brand value of the on-going branded relationship and their willingness to maintain that relationship.

An exploratory approach

This investigation is modelled on the grounded theory approach adopted by Elliott & Yannopoulou (2007) in which they used 14 interviews of purposefully selected individuals to generate theory. Consequentially, this paper adopts an initial exploratory approach based on a critical realist retroductive research strategy, in which the relationships between MMO product trust, RMT and consumers can be explored in their context with a view to initial hypothesis generation for subsequent empirical testing & investigation.

> *"….the central aim of critical realist research is to obtain reliable knowledge in a reflexive open system. To suggest causal research pre-supposes that such hermeneutic matters have been dealt with….The context and process of qualitative research will be crucial in dealing adequately with hermeneutic issues. Thus, Finch (1999) suggests that an approach such as grounded theory, employed in a study of the network of actual relationships would be a sensible means of dealing with this issue… As such it is instructive in helping to outline a critical realist epistemology."* (Downward, Finch & Ramsay, 2002, p490

The interpretivistic grounded theory approach adopted involves:

> *"The procedures of grounded theory are designed to develop a well integrated set of concepts that provide a thorough theoretical explanation of social phenomena under study. A grounded theory should explain as well as describe. It may also implicitly give some degree of predictability, but only with regard to specific conditions... Grounded theory seeks not only to uncover relevant conditions, but also to determine how the actors respond to changing conditions and to the consequences of their actions... The data collection procedures involve interviews and observations as well as other sources"* (Corbin and Strauss, 1990, p. 5)

This investigation follows the approach adopted by Elliott & Yannopoulou (2007) but modifies this for a netnographic (Kozinets, 2002) approach. An online video games forum was chosen using the concept of purposive sampling criterion, *"that is sampling for theory construction, not for representativeness of a given population"* (Charmaz, 1995, p. 28) and informed by Kozinets's (2002) general guidelines on suitable researchable communities.

> *"In general, online communities should be preferred that have (1) a more focused and research question-relevant segment, topic, or group; (2) higher "traffic" of postings; (3) larger numbers of discrete message posters; (4) more detailed or descriptively rich data; and (5) more between-member interactions of the type required by the research question."* (Kozinets, 2002, p63)

In December of 2007 a forum post was made with a ten open ended questions identifying clearly; the researcher, the ethical guidelines the researcher was operating under, the researchers credentials and the researchers private e-mail address (if the participants wished to reply anonymously). These processes being seen in Netnography as crucial in

"building trust" (Catterall & Maclaren, 2001, p231) with the researched online community. The post elicited 6 responses from individuals on the forum boards and 2 private e-mails over a period of 5 days.

This study then adopted, following the approach of Elliott & Yannopoulou (2007), a micro-analysis strategy for coding and categorising the resultant data, *"the detailed line-by-line analysis necessary at the beginning of a study to generate initial categories, with their properties and dimensions, and to suggest relationships among categories"* (Strauss and Corbin, 1998, p. 57). Table 1 below shows the significant similarities and differences between the Elliott & Yannopoulou (2007) research and this paper

	Elliott & Yannopoulou (2007)	**Investigation**
Data	Personal Interviews	Netnographic Approach
Subjects	14 Subjects	8 Subjects
Data Collection	Purposeful Sampling	Purposeful Sampling
Data Analysis	Microanalysis Emergent categories	Microanalysis Emergent categories
Data presentation	Explanatory based on Emergent Categories Excerpts used as illustration	Explanatory based on Emergent Categories Excerpts used as illustration

Table 1

Product Experience Impairment & RMT Visibility

There seems to be some limited evidence that the perceptions of RMT impacts and the customers perception of the game may be tied to factors such as length of play experience in MMO-games and convenience of the ability of their product to ignore the visible market. Of the participants, those with less than 2 years experience in MMO-games seemed the most disrupted by the advertising effects.

> *"Constant whispers group invites (for private spam) and city spamming effects me greatly in that its a very annoying disruption. I crave the point where the makers of my MMO of choice will add a "delete this account on the spot" button for their GMs for use on advertisers."* Participant 2

> *"When someone spams my local communications channels every 20seconds with an advert and mails me directly with more adverts it annoys me"* Participant 1

However, and in contrast, players who had greater than 2 years experience in playing games saw the visibility of the RMT as nothing more than a minor irritant;

> *"…about once a month I get an in-game mail telling me about some currency selling website but thats it."* Participant 4

> *"Mostly it's an irritant."* Participant 5

Leading to the tentative hypothesis that experience of a product environment in which RMT activity is prevalent could desensitise a customer to it relative importance over time. Indeed as one participant succinctly put it:

> *"nobody likes spam, but like billboards by the side of the road you eventually get used to them."* Participant 7

In addition, easy and convenient product features to delete, ignore or otherwise be ignorant of the RMT going on around the customer seem to have great value:

> *"They make me have to press "delete" on the mails, nothing more really"* Participant 6

Even if that product feature is as simple as just being able to make the visible chat box so small that you can play without being disrupted:

> *"If a little bit of scrolling text in a chat box annoys you, you really need a new hobby."* Participant 3

Active product management, social group tolerance & immediacy

Despite a clear understanding of the EULA & TOS most customers showed a clear tolerance to the idea of their fellow players participating in the RMT; whatever their activity. Clearly apparent was the difference in attitude towards conceptual downsides of the RMT and the immediacy of one of their social groupings use of it. For example a pattern repeated in a number of the replies was that customers were actually able to display a good appreciation of the impacts on their own play of the RMT

> *"Buying currency in-game drastically alters how the economics within the game works. In my opinion buying currency causes inflation in the market for certain items and depress the market for other items. This direct affects not how I play the game but what I can do in the game due to in-game financial restrictions."*
> Participant 4

And yet, the same participant when asked how they or their own social group would react displayed remarkable tolereance for the idea, despite their previous misgivings

> *"I wouldn't impose my feelings on how the game should be played onto someone else."* Participant 4

Creating a situation where active management of the situation by relying on customers reporting each other may be a flawed (but not necessarily ineffectual) tactic, which might be best used with a broad spectrum of other tactics. Conversely, and importantly, though currency purchases and account purchases by players where seen in completely different lights by some participants:

> *"We'd kick anyone buying a character, and obviously any character that was sold would be fired. Currency? Not really a problem."* Participant 5

With a number of participants describing the difference in social trust that account purchasing can make. With one participant very succinctly summing up a number of stated opinions with:

> *"Experienced players can tell an AH-equipped toon a mile off. Money cannot buy Kara items. You HAVE to have the guild and the skill to handle the encounters. However a bought account can have all of those things and you can be a witless noob. Buying gold does not buy into this deception to anywhere near the same extent."* Participant 3

Acceptance of product achievement hierarchy & trust in continuance of it

MMO-games mainly impose some kind of achievement hierarchy on the players, and it is clear that simple "solutions" to RMT issues by a company completely altering it's EULA & TOS policies to start selling customers these digital items directly (& costlessly) and take advantage of this market might not be well received. In a way reminiscent of Clientele Theory, paying customers, once they have spent time in a particular achievement hierarchy and enjoyed it, seem unwilling to accept changes to it. Powerful account purchases in particular participants being fervently against:

"Strongly disagree. Buying high level toons cheapens the game and reduces all sense of achievement. Furthermore bought characters leads to a situation whereby you have players going into raids who have no idea how to play their toons" Participant 8

"I do not think the ability to buy high level characters is a good idea. Different MMO's work in different ways, in EVE there is no level system and as such no bar to new players participating in any part of the game. Being able to buy high skillpoint characters make a nonsense of the skill system. You dont grind levels a skill takes however long it take to train, doesn't matter if your logged in or not. Shortcutting that process is above all simply unfair." Participant 4

"No. That defies the point of the game." Participant 2

It is important to note that all participants where against fundamental shifts in the achievement hierarchy of their chosen product, the answers being unambiguous in nature. Seemingly customers, once they have accepted the familiarity and reassurance of a consistent achievement hierarchy in an MMO product are highly unaccepting of fundamental changes. The policy implications for managers being clear, whatever the achievement hierarchy is that that has attracted & retained your customers, alterations to it obviously can cause issues in customers product trust and wiliness to remain on-going subscribers. What the hierarchy itself is will vary from product to product, but changes mid-product life cycle should be avoided.

Some implications for managers

Product design can alter customer perceptions

Customers of MMO game companies would seem to greatly value quick and easy ways in which they can ignore the externalities of the RMT. Simple things like being able to resize (or temporarily hide) the chat-box so they do not receive messages, or a simple "ignore" feature, being

evidenced as affecting perception by the customers of the issue. Importantly though, newer customers would seem to be more effected than more experienced ones, perhaps as the older ones have built more familiarity and confidence in the game. Longer term customers also show signs of being more desensitised, though crucially, not more accepting, to in-game advertising for RMT activities.

Active anti-RMT actions should use a broader range of policies than relying on customers to report

Many companies, as seen with the Flying Labs Software example, but also Sony Online Entertainment and Blizzard Entertainment, rely on customers to self police and report. While this may have some success, managers should realise that, by and large, social groupings have their own social trust mechanisms, with a high degree of tolerance in these groupings for RMT use. The immediacy of the situation is clear, people who the customers know, are seen as very different than a vague nebulous grey market which is negatively effecting them in difficult to define, but appreciable, ways.

Consistency of the achievement hierarchy experience is more important than exploiting in-game asset market

Seemingly customers gain reassurance and confidence in a product from a consistent achievement hierarchical structure being in place within the product. Thus it is clear that fundamental shifts in game approach to the RMT would fundamentally shake the trust many customers place in the product. The implications for managers clear, stick consistently to the same policy, with any pro-RMT actions needing to be taken at the start of the products life cycle, not in the middle.

Avenues of future research

As an exploratory piece of research the clearly identified RMT-related categories of visibility, immediacy and hierarchical acceptance again became inter-related with the concepts of brand product trust and an

active management strategy. It is clear though that much more empirical research on these needs to be conducted to be able to give managers a clearer idea of how customers react to changes in the nature of their on-going product purchase. As the first step in a wider research agenda though, these findings allow for some hypothesis generation based on limited evidence, regarding how the elements of brand trust can be effectively managed to attempt to minimise the impairment effects of the RMT in MMO games which specifically prohibit it.

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Appendix C: Online Questionnaire on SurveyMonkey

Page 1

1. Introduction to MMO Customer Research Survey

You are invited to participate in a research survey which is collecting information on the impact of commitment, trust and satisfaction on the subscription renewal of MMO customers. This study aims to better understand the inter-relationships amongst a variety of variables that influence the subscription renewal decision.

Page 2

2. Informed Consent: Age

The research ethics protocols this survey operates under require all participants to be 18 or over. Please indicate below if you are over the age of 18 to proceed

How old are you?

- ○ I am 18 or over.
- ○ I am under the age of 18

Page 3

3. Informed Consent: Participant Confirmation

This survey has been designed to take between 10 to 15 minutes and the questions asked are generally reflections regarding your experiences of being a MMO customer.

Information obtained in this study will be kept strictly confidential (i.e. will not be passed to others) and anonymous (i.e. individuals and organisations will not be identified). Data obtained through this research may be reproduced and published in a variety of forms and for a variety of audiences related to the broad nature of the research detailed above. It will not be used for purposes other than those outlined above. Participation is entirely voluntary and participants may withdraw at any time.

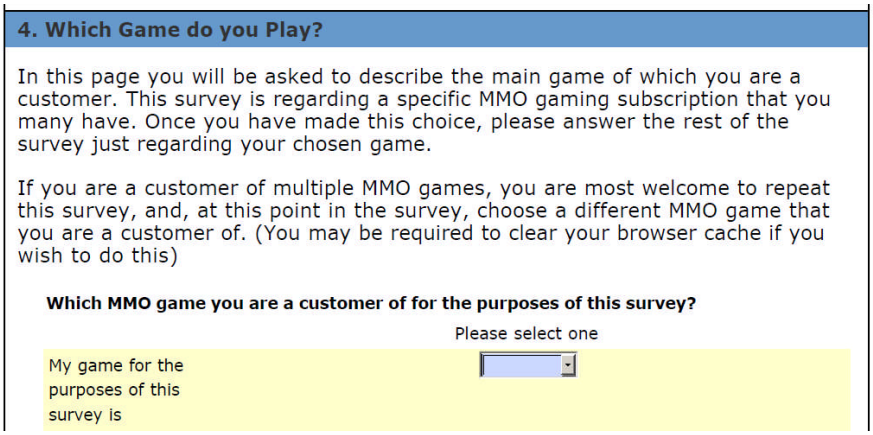
This research survey forms part of the PhD research of David Grundy, a Senior Lecturer and PhD Student at University of Northumbia. If you have any questions, or wish to contact the researcher please direct any correspondence, emails or phone calls to:

David Grundy
CCE1-233, Newcastle Business School
University of Northumbria
Newcastle Upon Tyne
NE1 8ST
Tele: 0191 227 4951 Email: david.grundy@northumbria.ac.uk

Do you wish to continue with this survey?

- ○ I want to participate
- ○ I do not wish to participate

Page 4



4. Which Game do you Play?

In this page you will be asked to describe the main game of which you are a customer. This survey is regarding a specific MMO gaming subscription that you many have. Once you have made this choice, please answer the rest of the survey just regarding your chosen game.

If you are a customer of multiple MMO games, you are most welcome to repeat this survey, and, at this point in the survey, choose a different MMO game that you are a customer of. (You may be required to clear your browser cache if you wish to do this)

Which MMO game you are a customer of for the purposes of this survey?

	Please select one
My game for the purposes of this survey is	

Page 5

5. Your Relationship with the Game

In this section you will be asked a variety of questions regarding your views and reflections on your MMO subscription, your game account and the game in general.

Please indicate your views and reflections on the following statements

	Strongly Disagree	Disagree	Mostly Disagree	Non-committal	Mostly Agree	Agree	Strongly Agree
My gaming account is valuable	○	○	○	○	○	○	○
I've completed a great deal of the game's content	○	○	○	○	○	○	○
I've many friends in-game	○	○	○	○	○	○	○
I expect this game to make me happy over the next subscription period	○	○	○	○	○	○	○

Please indicate your views and reflections on the following statements

	Strongly Disagree	Disagree	Mostly Disagree	Non-committal	Mostly Agree	Agree	Strongly Agree
I keep up to date with upcoming MMO games.	○	○	○	○	○	○	○
My needs could easily be fulfilled by an alternative MMO game.	○	○	○	○	○	○	○
I've read many reviews of other MMO games.	○	○	○	○	○	○	○

How often does your subscription need renewing?

	Please select one
My subscription is renewed..	

Does your subscription automatically renew itself every renewal period?

	Please select one
My subscription...	

On average, in any given week, around how many hours do you play on your MMO?

Hours

Page 6

6. Long-term Groups within the Game

Many different games have different names for long term groups of players; guilds, corporations, clans, superteams.

In this survey the word "group" has been used to denote these long term in-game groupings.

Are you currently a member of a long term group in-game?

- Yes, I'm currently part of a group
- No, I'm not currently in a group, but I have been in the past.
- No, I've never been in a group.

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7. Long-term Groups within the Game

In this section you will be asked a some questions regarding your views and reflections on your in-game associations with other customers.

What are your views and reflections on the long term group you are part of?

	Strongly Disagree	Disagree	Mostly Disagree	Non-Committal	Mostly Agree	Agree	Strongly Agree
I'm an active part of my group							
I'm a good member of my group							
I can achieve things with my group							
I've a responsibility towards my fellow group members							
Some of the other players in my group are people I enjoy socialising with							

Have you ever used a "loot" allocation system in your group (DKP, Tank priority, etc.); Any loot system?

	Please select one
In our group...	

Does your long term group have a website?

- Yes, which I've used.
- Yes, but I've never used it.
- No.

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8. Your Relationship with the Game

In this section you will be asked a variety of questions regarding your views and reflections on your MMO subscription, your game account and the game in general.

Please indicate your views and reflections on the following statements

	Strongly Disagree	Disagree	Somewhat Disagree	Non-Committal	Somewhat Agree	Agree	Strongly Agree
I've achieved things in this game.	○	○	○	○	○	○	○
I've some great memories from playing this game.	○	○	○	○	○	○	○

Please indicate your views and reflections on the following statements

	Strongly Disagree	Disagree	Mostly Disagree	Non-committal	Mostly Agree	Agree	Strongly Agree
I regularly spend time reading about the game (news/upcoming content etc) outside of the game.	○	○	○	○	○	○	○
I think about playing the game regularly when I'm not playing.	○	○	○	○	○	○	○

How often do you access community websites (including forums, blogs, Radio shows etc.) related to your game?

	Never	Rarely (once every few months)	Seldom (once a month)	Infrequently (once a week)	Occasionally (several times a week)	Often (once a day)	Very Often (multiple times a day)
I visit game community websites	○	○	○	○	○	○	○

Please indicate your views and reflections on the following statements

	Strongly Disagree	Disagree	Mostly Disagree	Non-committal	Mostly Agree	Agree	Strongly Agree
I've confidence that the games company will keep the games quality to the levels I am used to	○	○	○	○	○	○	○
I expect that this game shall continue to leave me satisfied	○	○	○	○	○	○	○

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9. Your Relationship with the Game

In this section you will be asked a variety of questions regarding your views and reflections on your MMO subscription, your game account and the game in general.

How long have you been playing this MMO?

	Years	Months
I've been playing my game for..		

How many MMOs have you played altogether (including this one)?

	Please select one
MMO's	

Please rate on the scale how much you agree or disagree with the following statements

	Strongly Disagree	Disagree	Mostly Disagree	Non-committal	Mostly Agree	Agree	Strongly Agree
In general terms, I understand what sorts of activities could get me banned in-game.							
I agree that the things which could get me banned in-game are wrong.							
In general terms, I feel that I know what would break the End User Licence Agreement (EULA) and Terms of Service (TOS).							
The End User Licence Agreement (EULA) and Terms of Service (TOS) are things which I generally expect from a game.							
In broad terms, I generally agree that activities which break the End User Licence Agreement (EULA) and Terms of Service (TOS) are wrong.							

Page 9 (cont.)

Please rate on the scale how much you agree or disagree with the following statements

	Strongly Disagree	Disagree	Mostly Disagree	Non-committal	Mostly Agree	Agree	Strongly Agree
The games company understands my needs as a gamer	○	○	○	○	○	○	○
The games company understands my expectations from the game	○	○	○	○	○	○	○
The games company understands my concerns about the game	○	○	○	○	○	○	○

Please reflect on the following statements and how closely they relate to you.

	This is not me at all	I disagree with this	I somewhat disagree with this	Non-commital	This somewhat sounds like me	This sounds like me	This strongly sounds like me
I'm a fan of this game	○	○	○	○	○	○	○
I'm an MMO gamer	○	○	○	○	○	○	○
I'm part of the community of my game	○	○	○	○	○	○	○

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10. My Knowledge about the Game

In this section you will be asked a variety of questions regarding your views and reflections on how you interact with both the community and the game developers of your game.

Please reflect on the following statements.

	Strongly Disagree	Disagree	Somewhat Disagree	Non-committal	Somewhat Agree	Agree	Strongly Agree
I find it easy to find out information about this game.	○	○	○	○	○	○	○
I feel informed about the latest developments in the game.	○	○	○	○	○	○	○
I feel informed of the rules, regulations, policies and practices I need to adbide by.	○	○	○	○	○	○	○

The following questions are regarding your interaction with GM's (In-Game Customer Service Representatives)

	Strongly Disagree	Disagree	Somewhat Disagree	Non-committal	Somewhat Agree	Agree	Strongly Agree
The response of GM's in-game to problems I may have encountered is usually timely.	○	○	○	○	○	○	○
I'm confident that if I have a problem in-game a GM can usually help me.	○	○	○	○	○	○	○
If I have an in-game GM encounter which I am unhappy about, I feel able to complain about it.	○	○	○	○	○	○	○

Please reflect on how you feel able to give feedback.

	Strongly Disagree	Disagree	Somewhat Disagree	Non-committal	Somewhat Agree	Agree	Strongly Agree
The game developers ignore the feedback of the community.	○	○	○	○	○	○	○
The developers treat the community with contempt	○	○	○	○	○	○	○

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11. Your Views on the Game Developers

In this section you will be asked some questions regarding your views and reflections on the game developers of your game.

Please reflect on the following statements.

	Strongly Disagree	Disagree	Somewhat Disagree	Non-committal	Somewhat Agree	Agree	Strongly Agree
Sometimes the games company promises to do things without actually doing them later.	○	○	○	○	○	○	○
Sometimes the games company alters the facts slightly.	○	○	○	○	○	○	○

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12. The Activities of "Gold Sellers"

In this section you will be asked to reflect on various activities of "gold sellers" in the game.

The main activities of "gold selling" companies have been described as:

- Selling of in-game Currency; real money for virtual asset exchange.
- Power Levelling; the service of levelling a players avatar for real money.
- Selling in-game items; the sale of exclusive or hard to find in-game items for real money.
- Selling Accounts; the sale of in-game avatars, usually of high quality, for real money.
- "Escort Services"; taking customers to exclusive in-game locations, usually to gain in-game items.

Please reflect on your feelings towards the following statements

	Strongly Disagree	Disagree	Somewhat Disagree	Non-committal	Somewhat Agree	Agree	Strongly Agree
I've no issues with people buying in-game currency from 3rd parties.	○	○	○	○	○	○	○
I've no issues with the use of power-leveling services	○	○	○	○	○	○	○
I've no issues with people buying in-game items from "gold-sellers"	○	○	○	○	○	○	○
Buying an account is something I have no issues with.	○	○	○	○	○	○	○
I have no issues with the "Escort Services" that "gold-sellers" provide.	○	○	○	○	○	○	○

Have you ever used any of the "gold-seller" services listed above?

○ Yes

○ No

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13. Your Satisfaction with the Game in the Past

In this section you will be asked questions regarding your reflections on your past experience playing your game.

Please reflect on your feelings towards the following statements

	Strongly Disagree	Disagree	Somewhat Disagree	Non-committal	Somewhat Agree	Agree	Strongly Agree
In the past I've generally been pleased with this game.	○	○	○	○	○	○	○
I was happy with the game when I last renewed my subscription.	○	○	○	○	○	○	○
I was happy with the game last month.	○	○	○	○	○	○	○

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14. Your Trust in the Games Company

In this section you will be asked a variety of questions regarding Trust in relation to your MMO subscription, your game account and the game in general.

Please give your views and reflections on the following statements

	Strongly Disagree	Disagree	Mostly Disagree	Non-committal	Mostly Agree	Agree	Strongly Agree
The games company cannot be trusted at times to do what is right for my enjoyment of the game.	○	○	○	○	○	○	○
The games company has high levels of integrity and I trust them to not do things I'd consider to be wrong.	○	○	○	○	○	○	○
I'm confident that the games company will keep doing things which will keep me wanting to subscribe.	○	○	○	○	○	○	○
The games company is an honest company who I trust with my personal details on my account management page.	○	○	○	○	○	○	○
The games company make me feel that my custom is important.	○	○	○	○	○	○	○

Please give your views and reflections on the following statements

	Strongly Disagree	Disagree	Mostly Disagree	Non-committal	Mostly Agree	Agree	Strongly Agree
I'm confident that the games company is always looking to improve improve data security.	○	○	○	○	○	○	○
The games company's brandname means I can trust in the quality of this game.	○	○	○	○	○	○	○
The games company upholds the principles of a well-respected video games company.	○	○	○	○	○	○	○

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15. Your Commitment to your Game

In this section you will be asked a variety of questions regarding your views and reflections on your MMO subscription, your game account and the game in general.

Please give your views and reflections on the following statements

	Strongly Disagree	Disagree	Mostly Disagree	Non-Committal	Mostly Agree	Agree	Strongly Agree
This MMO game is something I'm very committed to.	○	○	○	○	○	○	○
There is just too much time, energy, and expense involved in finding another MMO to play.	○	○	○	○	○	○	○
This MMO game is something I intend to maintain a subscription of for the forseeable future.	○	○	○	○	○	○	○
This MMO game deserves the commitment of its players.	○	○	○	○	○	○	○

Please give your views and reflections on the following statements

	Strongly Disagree	Disagree	Mostly Disagree	Non-Committal	Mostly Agree	Agree	Strongly Agree
I would feel upset if my MMO game were to disappear in the future.	○	○	○	○	○	○	○
The MMO gaming experience from my game is important to me.	○	○	○	○	○	○	○
My MMO game is something I really care about.	○	○	○	○	○	○	○

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16. Your Current Satisfaction with your Gaming Experience

In this section you will be asked a variety of questions regarding your views and reflections on your MMO subscription, your game account and the game in general.

Please give your views and reflections on the following statements

	Strongly Disagree	Disagree	Mostly Disagree	Non-committal	Mostly Agree	Agree	Strongly Agree
My MMO game makes me happy.	○	○	○	○	○	○	○
My MMO game does a satisfactory job of fulfilling my needs.	○	○	○	○	○	○	○
Playing my MMO game is fun.	○	○	○	○	○	○	○
I find my MMO game a great way to relax.	○	○	○	○	○	○	○

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17. Future Intentions

In this section you will be asked a variety of questions regarding your future intentions, reflections and views

Please reflect on these statements regarding your future intentions.

	Strongly Disagree	Disagree	Mostly Disagree	Non-committal	Mostly Agree	Agree	Strongly Agree
I intend to continue playing this game in the future.	○	○	○	○	○	○	○

How much longer do you feel you are to going continue to subscribe to your MMO game?

	Highly Unlikely	Unlikely	Somewhat Unlikely	Non-committal	Somewhat likely	Likely	Very Likely
30 days?	○	○	○	○	○	○	○
60 days?	○	○	○	○	○	○	○
90 days?	○	○	○	○	○	○	○
Six months?	○	○	○	○	○	○	○
A Year?	○	○	○	○	○	○	○
More than a Year?	○	○	○	○	○	○	○
I can't realisticly see myself quitting this game in the near future.	○	○	○	○	○	○	○

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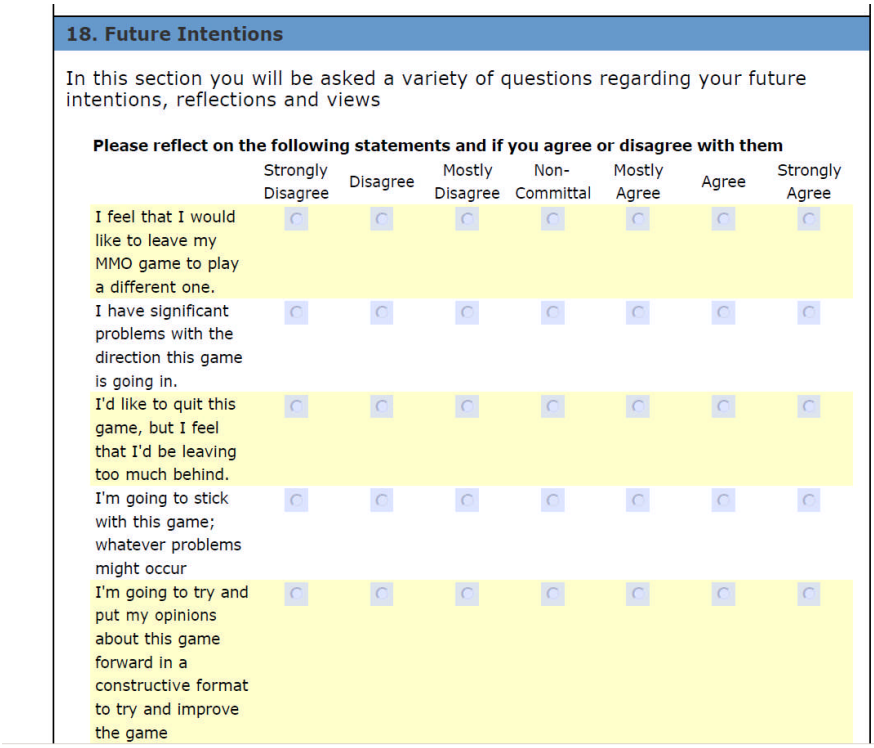

18. Future Intentions

In this section you will be asked a variety of questions regarding your future intentions, reflections and views

Please reflect on the following statements and if you agree or disagree with them

	Strongly Disagree	Disagree	Mostly Disagree	Non-Committal	Mostly Agree	Agree	Strongly Agree
I feel that I would like to leave my MMO game to play a different one.	○	○	○	○	○	○	○
I have significant problems with the direction this game is going in.	○	○	○	○	○	○	○
I'd like to quit this game, but I feel that I'd be leaving too much behind.	○	○	○	○	○	○	○
I'm going to stick with this game; whatever problems might occur	○	○	○	○	○	○	○
I'm going to try and put my opinions about this game forward in a constructive format to try and improve the game	○	○	○	○	○	○	○

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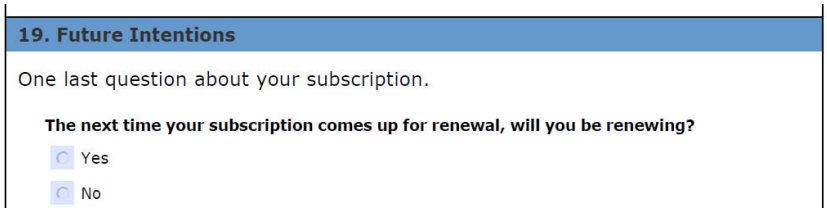

19. Future Intentions

One last question about your subscription.

The next time your subscription comes up for renewal, will you be renewing?

○ Yes

○ No

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20. Who are you?

Just some non-specific information which relates to you.

Gender

- Male
- Female

How old are you?

years old

Where do you live?

	Please select one
I'm currently living in	

What's your current job status?

	Please select one
I'm currently	

What's your current marital status?

	Please select one
I'm currently	

What's your yearly income?

	Currency	Amount
My yearly income is roughly (please only choose relevant currency, or dollars if your currency isn't listed)		

Please reflect on the following statement:

In the context of your month earnings and spending...

	Strongly Disagree	Disagree	Somewhat Disagree	Non-Committal	Somewhat Agree	Agree	Strongly Agree
The cost of my gaming subscription is so small I hardly notice it.							

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21. Thank you for your time

Thank you for your time,

If you have any further comments or feedback regarding this survey please e-mail me at david.grundy@northumbria.ac.uk.

If you would like to be updated on any information about this survey at a later date, please leave your e-mail address below and you will be added to the email distribution list (Your e-mail will not be used for any other purposes).

If you have any comments regarding the survey you have just particpated in, and wish to express any feedback, please leave a comment below.

Appendix D: Ethical Clearance Application

Newcastle Business School
Staff Research and Consultancy
Ethical Issues Form

Staff Name:	David Grundy
Portfolio Area:	AFM
Title of Research / Consultancy Project:	PhD
Please categorise your research as: • Learning & Pedagogical • Discipline based • Contribution to practice • A multiple of the above	Discipline based (Relationship Marketing)
How does this research fit in with the NBS ADP? – Which area of excellence from the ADP does the research address? – i.e: • Business & Management Practice • Leadership & Management Development • International Business	Fulfilment of PhD towards AACSB NBS Objectives Business and Management Practice & International Business
Start Date of Research / Consultancy project:	This application is to cover both the pilot and main survey instrument (expected to be completed by June/July 2009)

	Comments
Brief description of the proposed research methods including, in particular, whether human subjects will be involved and how.	An online questionnaire using SurveyMonkey. Participation is entirely voluntary and all survey participants will be asked to verify that they are over the age of 18 before proceeding with the survey. No identification data is asked (i.e. address/name) though participants can voluntarily give their e-mail address to be updated at a later date on the results of the survey if they so wish.
Ethical issues that may arise (if none, state "None" and give reasons)	The risks associated with this study are minimal, and are comparable to the risks of casual web-browsing. No personally identifying data will be collected (Bar an optional and voluntary e-mail address)

How will the ethical issues be addressed? (if none state n/a)	All participants are numbered rather than named (i.e. participant 1, 2, etc) and only those participants over the age of 18 will be counted.
Has informed consent of research participants been considered? If appropriate, has an informed consent form been completed?	Page 2 of the survey (after page 1 which asks regarding age) asks participants to read through details of study, gives researchers and NBS contact details, and asks for participant to agree to the study by answering either I want to participate/I do not want to participate.
Has organisational consent been considered? If appropriate, has an organisational consent form been completed?	As a broad internet based survey to MMO customers, no organisations are involved

Appendix E: Multicollinearity Tests

(i): Multicollinearity Test of Commitment

Coefficients[a]

Model		Unstandardised Coefficients		Standardised Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-1.197	.211		-5.675	.000		
	Game Capital	.206	.030	.171	6.972	.000	.596	1.677
	Knowledge of Alternatives	-.060	.017	-.072	-3.652	.000	.916	1.092
	Metagame Benefits	.223	.020	.231	11.226	.000	.841	1.189
	Group Social Benefits	.077	.029	.063	2.668	.008	.637	1.570
	Past Satisfaction	.268	.031	.251	8.644	.000	.423	2.365
	Shared Values with Company	-.016	.025	-.016	-.622	.534	.512	1.955
	Shared Values with Rules	-.013	.024	-.011	-.515	.606	.860	1.163
	Current Satisfaction	.379	.033	.305	11.343	.000	.493	2.028
	Trust	.097	.028	.086	3.520	.000	.596	1.676

a. Dependent Variable: Commitment

Appendix E (ii): Multicollinearity Test of Trust

Coefficients[a]

Model		Unstandardised Coefficients		Standardised Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.705	.176		4.015	.000		
	Current Satisfaction	.102	.022	.098	4.593	.000	.743	1.346
	Opportunistic Behaviour	-.018	.011	-.033	-1.706	.088	.916	1.091
	Perceptions of Game Developers	.077	.015	.116	5.238	.000	.698	1.433
	Customer Service Interactions	.101	.015	.143	6.947	.000	.806	1.240
	Availability of Game Information	.221	.021	.215	10.735	.000	.848	1.179
	Shared Values with Rules	.073	.022	.068	3.374	.001	.833	1.201
	Shared Values with Company	.305	.021	.364	14.465	.000	.537	1.861

a. Dependent Variable: Trust

Appendix F: KMO and Bartlett's Tests

Appendix F (i): KMO and Bartlett's Test of Antecedents

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.880
Bartlett's Test of Sphericity	Approx. Chi-Square	28439.420
	df	1128
	Sig.	.000

Appendix F (ii): KMO and Bartlett's Test of Psychological Outcomes

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.929
Bartlett's Test of Sphericity	Approx. Chi-Square	15159.651
	df	171
	Sig.	.000

Appendix F (iii): KMO and Bartlett's Test of Behavioural Outcomes

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.864
Bartlett's Test of Sphericity	Approx. Chi-Square	17696.669
	df	28
	Sig.	.000

Appendix G: Factor Analysis

Appendix G (i): Factor Analysis of Antecedents

(a) Eigenvalues

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	9.215	19.197	19.197	9.215	19.197	19.197
2	4.245	8.843	28.04	4.245	8.843	28.04
3	3.856	8.034	36.074	3.856	8.034	36.074
4	2.639	5.498	41.572	2.639	5.498	41.572
5	2.099	4.373	45.944	2.099	4.373	45.944
6	1.974	4.113	50.058	1.974	4.113	50.058
7	1.622	3.38	53.438	1.622	3.38	53.438
8	1.398	2.912	56.349	1.398	2.912	56.349
9	1.355	2.822	59.171	1.355	2.822	59.171
10	1.187	2.474	61.645	1.187	2.474	61.645
11	1.06	2.209	63.854	1.06	2.209	63.854

(b) Rotated Component Matrix

	Rotated Component Matrix(a)										
	Component										
	1	2	3	4	5	6	7	8	9	10	11
RTC1	0.014	0.273	0.197	0.08	0.007	0.45	-0.019	0	0.185	0.012	0.139
RTC2	0.086	-0.184	0.217	-0.026	-0.027	0.622	-0.014	0.024	-0.033	0.017	0.328
RTC3	-0.035	0.057	0.431	0.076	0.085	0.576	0.016	0.077	-0.025	0.089	-0.039
RTC4	0.003	0.716	0.144	0.098	0.08	0.158	0.024	0.025	0.104	0.06	0.005
RTC5	-0.047	-0.035	0.068	0.028	0.04	0.131	0.003	0.866	0.064	0.04	0.059
RTC6	0.14	-0.403	-0.013	-0.056	-0.024	-0.136	-0.017	0.533	-0.077	-0.004	0.093
RTC7	-0.048	0.013	0.016	-0.021	0.076	8.43E-05	-0.019	0.845	0.05	0.028	0.021
RBGRP1	-0.03	0.107	0.813	0.029	0.005	0.192	-0.013	-0.009	0.064	-0.021	0.068
RBGRP2	0.004	0.08	0.803	0.044	0.022	0.199	-0.053	0.02	0.043	-0.002	0.142
RBGRP3	0.039	0.127	0.733	0.072	0.091	0.184	0.001	0.016	0.024	0.061	0.047
RBGRP4	-0.027	0.064	0.78	0.083	0.085	0.136	0.05	0.023	0.11	0.043	-0.038
RBGRP5	-0.062	0.065	0.638	0.003	0.081	0.138	0.069	0.03	0.059	0.012	-0.022
RB1	0.008	0.082	0.304	0.091	0.09	0.602	-0.032	-0.013	0.125	0.038	0.22
RB2	-0.029	0.143	0.225	0.044	0.098	0.564	0.037	0.064	0.237	0.028	0.148
RB3	0.005	0.066	0.167	0.077	0.027	0.142	-0.007	0.1	0.769	0.008	0.159
RB4	0.08	0.208	0.005	0.123	0.002	0.213	0.005	-0.049	0.718	-0.027	-0.004
RB5	-0.028	0.078	0.098	-0.008	0.03	0.071	-0.03	0.066	0.792	0.031	0.051
RB6	-0.01	0.448	-0.022	0.649	0.048	0.014	0.1	0.012	0.106	0.089	0.052
RB7	-0.056	0.674	0.032	0.433	0.109	0.06	0.018	-0.019	0.102	0.111	-0.054
SV1	-0.043	0.103	0.106	-0.026	0.547	0.128	-0.091	0.135	-0.021	-0.019	0.358
SV2	-0.174	0.062	-0.02	0.064	0.641	-0.005	0.146	-0.04	0.068	0.048	-0.051
SV3	-0.033	0.056	0.066	0.089	0.731	0.106	-0.056	0.073	0.015	0.032	0.127
SV4	-0.067	0.093	0.121	0.12	0.774	0.042	0.053	0.064	-0.017	0.045	0.043
SV5	-0.189	0.042	0.062	0.077	0.798	0.029	0.096	-0.029	0.012	0.048	-0.052
SV6	-0.02	0.196	0.085	0.801	0.138	0.181	0.165	0.005	0.051	0.117	0.1
SV7	-0.026	0.225	0.085	0.807	0.154	0.142	0.169	-0.023	0.034	0.125	0.121
SV8	0.018	0.164	0.122	0.757	0.136	0.065	0.203	0.03	0.027	0.222	0.102
SV9	-0.048	0.448	0.051	0.284	0.125	0.371	0.079	-0.092	0.221	-0.011	0.095
SV10	0.01	0.111	0.026	0.098	0.115	0.451	-0.057	0.534	0.096	-0.025	-0.017
SV11	-0.031	0.189	0.276	0.126	0.095	0.598	0.053	0.117	0.141	0.05	-0.158
COM1	0.005	0.068	0.039	0.067	0.097	0.166	0.077	0.033	0.074	0.055	0.753
COM2	-0.009	0.08	0.04	0.176	0.083	0.093	0.162	0.06	0.127	0.106	0.713
COM3	-0.026	0.076	0.057	0.188	0.485	0.074	0.082	0.085	0.046	0.154	0.44
COM4	-0.025	0.057	-0.017	0.125	0.064	0.063	0.122	-0.015	0.028	0.809	0
COM5	-0.031	0.109	0.09	0.151	0.069	0.027	0.121	-0.008	-0.025	0.819	0.153
COM6	-0.002	0.09	0.026	0.13	0.053	0.031	0.059	0.065	0.012	0.718	0.055
COM7REV	-0.014	0.105	0.096	0.401	0.061	-0.092	0.53	0.073	0.132	0.203	0.167
COM8REV	-0.043	0.131	0.111	0.231	0.062	-0.182	0.524	0.068	0.228	0.142	0.064
COM9	0.023	-0.094	0.044	-0.103	-0.065	-0.094	-0.814	0.037	0.15	-0.081	-0.087
COM10	0.03	-0.136	0.01	-0.143	-0.059	-0.076	-0.799	0.099	0.065	-0.072	-0.054
OB1	0.891	0.001	0.008	-0.037	-0.108	0.027	-0.044	0.013	-0.015	0.012	0.052
OB2	0.905	-0.011	-0.018	-0.001	-0.09	0.012	-0.057	0.011	-0.004	-0.002	-0.005
OB3	0.92	-0.013	0	-0.03	-0.088	0.004	-0.04	-0.025	-0.017	-0.01	0.019
OB4	0.74	-0.008	-0.033	0.04	-0.126	-0.007	0.062	-0.002	0.045	-0.048	-0.062
OB5	0.909	-0.021	-0.043	-0.025	-0.063	-0.034	-0.021	-0.017	0.024	-0.01	-0.014
PASTSAT1	-0.028	0.469	0.069	0.113	0.087	0.272	0.145	-0.069	0.054	0.085	0.337
PASTSAT2	0.018	0.81	0.134	0.149	0.08	0.034	0.137	-0.009	0.067	0.082	0.091
PASTSAT3	0.017	0.803	0.155	0.162	0.064	-0.033	0.154	-0.036	0.043	0.066	0.066

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 7 iterations.

(c) Analysis of Rotated Component Matrix

Rotated Component Matrix(a)

	Component											
	1	2	3	4	5	6	7	8	9	10	11	Significance Count	Retain Item?
RTC1												0	Eliminate item
RTC2						Significant						1	
RTC3						Significant						1	
RTC4		Significant										1	
RTC5								Significant				1	
RTC6								Significant				1	
RTC7								Significant				1	
RBGRP1			Significant									1	
RBGRP2			Significant									1	
RBGRP3			Significant									1	
RBGRP4			Significant									1	
RBGRP5			Significant									1	
RB1						Significant						1	
RB2						Significant						1	
RB3									Significant			1	
RB4									Significant			1	
RB5									Significant			1	
RB6				Significant								1	
RB7		Significant										1	
SV1					Significant							1	
SV2					Significant							1	
SV3					Significant							1	
SV4					Significant							1	
SV5					Significant							1	
SV6				Significant								1	
SV7				Significant								1	
SV8				Significant								1	
SV9												0	Eliminate item
SV10								Significant				1	
SV11						Significant						1	
COM1											Significant	1	
COM2											Significant	1	
COM3												0	Eliminate item
COM4										Significant		1	
COM5										Significant		1	
COM6										Significant		1	
COM7REVS(							Significant					1	
COM8REVS(							Significant					1	
COM9												0	Eliminate item
COM10												0	Eliminate item
OB1	Significant											1	
OB2	Significant											1	
OB3	Significant											1	
OB4	Significant											1	
OB5	Significant											1	
PASTSAT1												0	Eliminate item
PASTSAT2		Significant										1	
PASTSAT3		Significant										1	

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 7 iterations.

PCA identified the expected constructs of:

1. Opportunistic Behaviours (OB)
2. Past Satisfaction (Past Sat)
3. Group Benefits (RB)
4. Shared Values with Games Company (SV)
5. Shared Values with Games Rules (SV)
6. Game Capital (RTC)
7. Perceptions of game developers' communication (Comm)
8. Knowledge of Alternatives (RTC)
9. Meta-game Relationship Benefits (RB)
10. In-game customer Service Interactions (Comm)
11. Availability of game information (Comm)

Six items were eliminated at this stage.

Appendix G (ii): Factor Analysis of Psychological Outcomes

(a) Eigenvalues

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	7.645	40.237	40.237	7.645	40.237	40.237
2	2.432	12.801	53.037	2.432	12.801	53.037
3	1.211	6.371	59.409	1.211	6.371	59.409

(b) Rotated Component Matrix

Rotated Component Matrix(a)

	Component		
	1	2	3
TRUST1REVSCALE	0.541	-0.088	0.423
TRUST2	0.722	0.019	0.274
TRUST3	0.581	0.225	0.506
TRUST4	0.682	0.195	0.089
TRUST5	0.612	0.163	0.335
TRUST6	0.686	0.192	0.027
TRUST7	0.808	0.148	-0.002
TRUST8	0.846	0.143	0.078
COMMIT1	0.201	0.729	0.344
COMMIT2	0.034	0.382	-0.112
COMMIT3	0.208	0.593	0.5
COMMIT4	0.291	0.527	0.349
COMMIT5	0.108	0.657	0.369
COMMIT6	0.135	0.763	0.22
COMMIT7	0.141	0.813	0.311
CURSAT1	0.124	0.429	0.704
CURSAT2	0.154	0.382	0.68
CURSAT3	0.175	0.23	0.8
CURSAT4	0.143	0.093	0.745

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalisation.

a. Rotation converged in six iterations.

(c) ***Analysis of Rotated Component Matrix***

	Component				
	1	2	3	Significance Count	Retain Item?
TRUST1REVSCALE	Significant			1	
TRUST2	Significant			1	
TRUST3	Significant		Significant	2	Eliminate Item
TRUST4	Significant			1	
TRUST5	Significant			1	
TRUST6	Significant			1	
TRUST7	Significant			1	
TRUST8	Significant			1	
COMMIT1		Significant		1	
COMMIT2				0	Eliminate Item
COMMIT3		Significant		1	
COMMIT4		Significant		1	
COMMIT5		Significant		1	
COMMIT6		Significant		1	
COMMIT7		Significant		1	
CURSAT1			Significant	1	
CURSAT2			Significant	1	
CURSAT3			Significant	1	
CURSAT4			Significant	1	

PCA identified:

1. Trust
2. Commitment
3. Current Satisfaction

Two items were eliminated at this stage

Appendix G (iii): Factor Analysis of Behavioural Outcomes

(a) Eigenvalues

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.594	69.93	69.93	5.594	69.93	69.93
2	1.495	18.683	88.613	1.495	18.683	88.613

(b) *Rotated Component Matrix*

Rotated Component Matrix(a)

	Component	
	1	2
FI1	0.236	0.825
FI2	0.958	0.054
FI3	0.96	0.188
FI4	0.93	0.313
FI5	0.84	0.479
FI6	0.684	0.648
FI7	0.476	0.787
FI8	0.019	0.92

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalisation.

a. Rotation converged in three iterations.

(c) *Analysis of Rotated Component Matrix*

Rotated Component Matrix(a)

Component

	1	2	Significance Count	
FI1		Significant	1	
FI2	Significant		1	
FI3	Significant		1	
FI4	Significant		1	
FI5	Significant		1	
FI6	Significant	Significant	2	Elim.
FI7		Significant	1	
FI8		Significant	1	

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalisation.

a. Rotation converged in three iterations.

PCA identified the expected constructs of:

1. Less than Year Future Intentions
2. More than Year Future Intentions

One item was eliminated at this stage.

Appendix H: Modification Index Application Analysis

Modification Index of Variable Errors			M.I.	Par Change	Decision Criteria >4	Reciperical	Significance Calculation
FI5	<---	FI4	32.921	0.08	Meets Criteria	Yes	Significant at the 0.001% level
FI5	<---	FI2	9.773	-0.042	Meets Criteria	Yes	
FI4	<---	FI5	125.551	0.096	Meets Criteria	Yes	Significant at the 0.001% level
FI4	<---	FI2	4.829	-0.018	Meets Criteria	Yes	
FI3	<---	FI4	13.626	0.024	Meets Criteria	No	
FI3	<---	FI2	53.458	0.045	Meets Criteria	Yes	Significant at the 0.001% level
FI2	<---	FI5	133.346	-0.109	Meets Criteria	Yes	
FI2	<---	FI4	88.901	-0.088	Meets Criteria	Yes	
FI2	<---	FI3	42.47	-0.061	Meets Criteria	Yes	Significant at the 0.001% level
TRUST2	<---	TRUST4	8.452	0.074	Meets Criteria	No	
TRUST2	<---	TRUST5	11.044	0.074	Meets Criteria	Yes	Significant at the 5% Level
TRUST4	<---	TRUST7	24.371	-0.105	Meets Criteria	No	
TRUST4	<---	TRUST8	10.814	-0.076	Meets Criteria	Yes	Significant at the 5% Level
TRUST5	<---	TRUST2	25.475	0.135	Meets Criteria	Yes	Significant at the 5% Level
TRUST5	<---	TRUST4	12.304	0.104	Meets Criteria	No	
TRUST5	<---	TRUST6	27	0.146	Meets Criteria	No	
TRUST6	<---	TRUST2	13.26	-0.081	Meets Criteria	No	
TRUST7	<---	TRUST5	5.992	-0.047	Meets Criteria	No	
TRUST7	<---	TRUST6	5.168	0.047	Meets Criteria	No	
TRUST7	<---	TRUST8	45.764	0.153	Meets Criteria	Yes	Significant at the 0.001% level

TRUST8	<---	TRUST2	15.304	-0.061	Meets Criteria	No	
TRUST8	<---	TRUST4	5.572	-0.041	Meets Criteria	Yes	Significant at the 5% Level
TRUST8	<---	TRUST5	54.015	-0.11	Meets Criteria	No	
TRUST8	<---	TRUST7	28.373	0.086	Meets Criteria	Yes	Significant at the 0.001% level
CURSAT1	<---	CURSAT2	95.624	0.199	Meets Criteria	Yes	Significant at the 0.001% level
CURSAT1	<---	CURSAT3	15.26	0.086	Meets Criteria	Yes	Not Significant
CURSAT2	<---	CURSAT1	69.38	0.207	Meets Criteria	Yes	Significant at the 0.001% level
CURSAT3	<---	CURSAT1	30.165	-0.101	Meets Criteria	Yes	Not Significant
CURSAT3	<---	CURSAT2	48.216	-0.12	Meets Criteria	No	
CURSAT4	<---	CURSAT1	19.626	-0.118	Meets Criteria	No	
CURSAT4	<---	CURSAT2	9.947	-0.079	Meets Criteria	No	
COMMIT7	<---	COMMIT6	18.374	0.074	Meets Criteria	Yes	Significant at the 0.001% level
COMMIT6	<---	COMMIT7	13.616	-0.067	Meets Criteria	Yes	Significant at the 0.001% level
COMMIT6	<---	COMMIT4	66.191	-0.155	Meets Criteria	No	
COMMIT6	<---	COMMIT3	111.128	-0.199	Meets Criteria	No	
COMMIT6	<---	COMMIT1	67.392	-0.153	Meets Criteria	No	
COMMIT4	<---	COMMIT3	54.272	0.179	Meets Criteria	Yes	Significant at the 5% Level
COMMIT4	<---	COMMIT1	14.417	0.091	Meets Criteria	Yes	
COMMIT3	<---	COMMIT7	7.061	0.059	Meets Criteria	No	
COMMIT3	<---	COMMIT4	77.67	0.205	Meets Criteria	Yes	Significant at the 5% Level
COMMIT3	<---	COMMIT1	27.468	0.12	Meets Criteria	Yes	
COMMIT1	<---	COMMIT4	7.069	0.052	Meets Criteria	Yes	
COMMIT1	<---	COMMIT3	5.47	0.045	Meets Criteria	Yes	

RTC4	<---	RB7	28.294	0.115	Meets Criteria	Yes	Significant at the 0.001% level
RB7	<---	RTC4	72.813	0.218	Meets Criteria	Yes	Significant at the 0.001% level
RB7	<---	PASTSAT2	9.826	0.09	Meets Criteria	Yes	
RB7	<---	PASTSAT3	21.986	0.131	Meets Criteria	No	
PASTSAT2	<---	RTC4	65.983	-0.128	Meets Criteria	No	
PASTSAT2	<---	RB7	62.403	-0.119	Meets Criteria	Yes	
PASTSAT3	<---	PASTSAT2	29.289	0.105	Meets Criteria	No	
OB1	<---	OB2	7.46	0.043	Meets Criteria	Yes	
OB1	<---	OB3	61.939	0.128	Meets Criteria	Yes	Significant at the 0.001% level
OB2	<---	OB1	6.663	-0.039	Meets Criteria	Yes	
OB2	<---	OB3	9.021	-0.046	Meets Criteria	No	
OB3	<---	OB1	47.958	0.092	Meets Criteria	Yes	Significant at the 0.001% level
OB3	<---	OB4	12.257	-0.042	Meets Criteria	No	
OB4	<---	OB5	7.521	0.069	Meets Criteria	Yes	
OB5	<---	OB1	52.063	-0.108	Meets Criteria	No	
OB5	<---	OB3	22.702	-0.073	Meets Criteria	No	
OB5	<---	OB4	4.816	0.03	Meets Criteria	Yes	
COM8REVSCALE	<---	COM7REVSCALE	4.883	-0.055	Meets Criteria	No	
COM4	<---	COM6	9.067	-0.067	Meets Criteria	Yes	
COM5	<---	COM4	16.749	0.082	Meets Criteria	No	
COM6	<---	COM4	15.298	-0.096	Meets Criteria	Yes	
COM6	<---	COM5	7.55	-0.074	Meets Criteria	No	
COM6	<---	RTC7	8.87	0.07	Meets Criteria	No	

SV1	<---	SV2	27.37	-0.077	Meets Criteria	No	
SV1	<---	SV3	14.453	-0.067	Meets Criteria	Yes	Significant at the 0.001% level
SV1	<---	SV4	94.281	-0.184	Meets Criteria	Yes	Not Significant
SV1	<---	SV5	130.576	-0.184	Meets Criteria	Yes	
SV2	<---	SV3	7.717	-0.088	Meets Criteria	Yes	
SV2	<---	SV5	105.258	0.298	Meets Criteria	Yes	Significant at the 0.001% level
SV3	<---	SV1	12.622	0.114	Meets Criteria	Yes	Significant at the 0.001% level
SV3	<---	SV2	19.067	-0.087	Meets Criteria	Yes	
SV3	<---	SV4	15.509	0.102	Meets Criteria	Yes	Significant at the 0.001% level
SV4	<---	SV1	7.637	-0.075	Meets Criteria	Yes	Not Significant
SV4	<---	SV3	13.542	0.074	Meets Criteria	Yes	Significant at the 0.001% level
SV4	<---	SV5	14.324	0.07	Meets Criteria	Yes	
SV5	<---	SV1	7.146	-0.093	Meets Criteria	Yes	
SV5	<---	SV2	161.091	0.275	Meets Criteria	Yes	Significant at the 0.001% level
SV5	<---	SV3	5.139	0.058	Meets Criteria	No	
SV5	<---	SV4	30.532	0.154	Meets Criteria	Yes	Significant at the 0.001% level
SV6	<---	RB6	20.978	-0.069	Meets Criteria	No	
SV6	<---	SV7	6.671	-0.042	Meets Criteria	Yes	
SV6	<---	SV8	16.639	-0.061	Meets Criteria	Yes	
SV7	<---	SV6	5.019	0.035	Meets Criteria	Yes	
SV7	<---	SV8	4.813	0.032	Meets Criteria	Yes	
SV8	<---	RB6	5.912	0.05	Meets Criteria	No	
SV8	<---	SV6	5.312	0.051	Meets Criteria	Yes	
SV8	<---	SV7	13.666	0.082	Meets Criteria	Yes	

RB4	<---	RB3	7.02	0.077	Meets Criteria	No	
RB5	<---	RB4	7.145	-0.058	Meets Criteria	No	
RBGRP1	<---	RBGRP2	85.693	0.229	Meets Criteria	No	
RBGRP1	<---	RBGRP3	11.172	0.078	Meets Criteria	Yes	
RBGRP1	<---	RBGRP4	22.087	0.099	Meets Criteria	No	
RBGRP1	<---	RBGRP5	12.486	0.075	Meets Criteria	No	
RBGRP2	<---	RBGRP3	35.529	-0.104	Meets Criteria	Yes	Significant at the 0.001% level
RBGRP2	<---	RBGRP4	37.27	-0.096	Meets Criteria	No	
RBGRP2	<---	RBGRP5	26.082	-0.081	Meets Criteria	No	
RBGRP3	<---	RBGRP1	8.737	-0.058	Meets Criteria	Yes	
RBGRP3	<---	RBGRP2	10.428	-0.074	Meets Criteria	Yes	Significant at the 0.001% level
RBGRP3	<---	RBGRP4	7.822	0.054	Meets Criteria	Yes	
RBGRP4	<---	RBGRP3	28.953	0.132	Meets Criteria	Yes	
RBGRP4	<---	RBGRP5	9.259	0.068	Meets Criteria	No	
RBGRP5	<---	RBGRP2	8.687	-0.085	Meets Criteria	No	
RTC5	<---	RTC7	56.199	0.147	Meets Criteria	Yes	Significant at the 0.001% level
RTC6	<---	RTC5	16.673	-0.116	Meets Criteria	No	
RTC6	<---	RTC7	23.013	-0.125	Meets Criteria	No	
RTC6	<---	SV10	10.744	-0.109	Meets Criteria	Yes	Significant at the 0.001% level
RTC7	<---	RTC5	19.139	0.106	Meets Criteria	Yes	Significant at the 0.001% level
RTC7	<---	SV10	7.921	-0.081	Meets Criteria	Yes	
SV10	<---	RTC5	40.782	-0.135	Meets Criteria	No	
SV10	<---	RTC6	14.102	-0.075	Meets Criteria	Yes	Significant at the 0.001% level

SV10	<---	RTC7	59.757	-0.15	Meets Criteria	Yes	
RTC2	<---	RB1	18.095	0.179	Meets Criteria	No	
RTC3	<---	RTC2	37.826	0.14	Meets Criteria	No	
RTC3	<---	RB2	12.523	0.128	Meets Criteria	No	
RTC3	<---	SV11	63.459	0.211	Meets Criteria	Yes	Significant at the 0.001% level
RB1	<---	SV11	30.273	-0.091	Meets Criteria	No	
RB2	<---	SV11	4.132	-0.035	Meets Criteria	No	
SV11	<---	RTC3	44.404	0.169	Meets Criteria	Yes	Significant at the 0.001% level

Appendix I: Age Analysis (i)

Statistics

AGE

N	Valid	1498
	Missing	768
Mean		28.35
Median		27.00
Mode		18
Std. Deviation		8.634
Range		68
Minimum		18
Maximum		69
Sum		42468
Percentiles	25	21.00
	50	27.00
	75	34.00

Appendix I: Age Analysis (ii)

	AGE	N	Mean	Std. Deviation	Std. Error Mean
Game Capital	>= 27	757	5.3798	.95382	.03467
	< 27	741	5.6747	.88059	.03235
Knowledge of Alternatives	>= 27	757	4.6705	1.27661	.04640
	< 27	741	4.6744	1.22834	.04512
Metagame Benefits	>= 27	757	5.5332	1.09988	.03998
	< 27	741	5.6019	1.09225	.04012
Group Social Benefits	>= 27	586	5.8624	.90800	.03751
	< 27	596	6.1080	.73368	.03005
Past Satisfaction	>= 27	757	5.5584	1.03306	.03755
	< 27	741	5.5744	1.06428	.03910
Shared Values with Company	>= 27	757	5.0286	1.12915	.04104
	< 27	741	5.1552	1.09500	.04023
Shared Values with Rules	>= 27	751	5.7936	.84912	.03098
	< 27	733	5.7934	.90027	.03325
Availability of Game Information	>= 27	757	5.9418	.98486	.03580
	< 27	741	6.2268	.80401	.02954
Customer Service Interactions	>= 27	757	4.6911	1.35011	.04907
	< 27	741	4.8489	1.27676	.04690
Perceptions of Game Developers	>= 27	757	5.1540	1.39119	.05056
	< 27	741	5.0573	1.40418	.05158
Opportunistic Behaviour	>= 27	757	2.6540	1.68414	.06121
	< 27	741	2.6021	1.68235	.06180
Trust	>= 27	757	5.2653	.97158	.03531
	< 27	741	5.5928	.85402	.03137
Commitment	>= 27	757	5.3319	1.06296	.03863
	< 27	741	5.4150	1.08940	.04002
Current Satisfaction	>= 27	757	5.6173	.87510	.03181
	< 27	741	5.6501	.91729	.03370
Future Intentions	>= 27	745	5.8160	1.86672	.06839
	< 27	736	5.4973	2.01415	.07424

Appendix I: Age Analysis (iii)

		Levene's Test for Equality of Variances		***Independent Samples Test***			***t-test for Equality of Means***			
		F	***Sig.***	***t***	***df***	***Sig. (2-tailed)***	***Mean Difference***	***Significance***	***Cohen's d***	***Cohen's Indicator***
Game Capital	Equal variances assumed	6.281	0.012	-6.213	1496	0	-0.29486			
	Equal variances not assumed			-6.218	1490.916	0	-0.29486	At the 0.01% Level	-0.32	Small
Knowledge of Alternatives	Equal variances assumed	1.478	0.224	-0.06	1496	0.952	-0.0039	Not Significant		
	Equal variances not assumed			-0.06	1495.56	0.952	-0.0039			
Metagame Benefits	Equal variances assumed	0.035	0.851	-1.213	1496	0.225	-0.06871	Not Significant		
	Equal variances not assumed			-1.213	1495.689	0.225	-0.06871			
Group Social Benefits	Equal variances assumed	9.94	0.002	-5.119	1180	0	-0.24562			
	Equal variances not assumed			-5.11	1122.386	0	-0.24562	At the 0.01% Level	-0.21	Small
Past Satisfaction	Equal variances assumed	1.755	0.185	-0.294	1496	0.769	-0.01595	Not Significant		
	Equal variances not assumed			-0.294	1492.1	0.769	-0.01595			

		Levene's Test for Equality of Variances		***Independent Samples Test***			***t-test for Equality of Means***			
		F	***Sig.***	***t***	***df***	***Sig. (2-tailed)***	***Mean Difference***	***Significance***	***Cohen's d***	***Cohen's Indicator***
Shared Values with Company	Equal variances assumed	0.116	0.733	-2.203	1496	0.028	-0.12665	At the 0.05% Level	-0.11	Insignificant
	Equal variances not assumed			-2.204	1495.87	0.028	-0.12665			
Shared Values with Rules	Equal variances assumed	1.562	0.212	0.003	1482	0.997	0.00015	Not Significant		
	Equal variances not assumed			0.003	1471.942	0.997	0.00015			
Availability of Game Information	Equal variances assumed	4.322	0.038	-6.129	1496	0	-0.28502			
	Equal variances not assumed			-6.142	1449.459	0	-0.28502	At the 0.01% Level	-0.32	Small
Customer Service Interactions	Equal variances assumed	2.88	0.09	-2.323	1496	0.02	-0.15778			
	Equal variances not assumed			-2.324	1494.227	0.02	-0.15778	At the 0.05% Level	-0.12	Insignificant
Perceptions of Game Developers	Equal variances assumed	0.202	0.653	1.339	1496	0.181	0.09673	Not Significant		
	Equal variances not assumed			1.339	1494.594	0.181	0.09673			

		Levene's Test for Equality of Variances		***Independent Samples Test***		***t-test for Equality of Means***				
		F	***Sig.***	***t***	***df***	***Sig. (2-tailed)***	***Mean Difference***	***Significance***	***Cohen's d***	***Cohen's Indicator***
Opportunistic Behaviour	Equal variances assumed	0.371	0.542	0.598	1496	0.55	0.052	Not Significant		
	Equal variances not assumed			0.598	1495.383	0.55	0.052			
Trust	Equal variances assumed	10.662	0.001	-6.924	1496	0	-0.3275			
	Equal variances not assumed			-6.933	1479.051	0	-0.3275	At the 0.01% Level	-0.36	Small
Commitment	Equal variances assumed	1.086	0.297	-1.494	1496	0.135	-0.08309	Not Significant		
	Equal variances not assumed			-1.494	1492.849	0.135	-0.08309			
Current Satisfaction	Equal variances assumed	1.585	0.208	-0.708	1496	0.479	-0.03281	Not Significant		
	Equal variances not assumed			-0.708	1489.035	0.479	-0.03281			
Future Intentions	Equal variances assumed	13.107	0	3.158	1479	0.002	0.31864			
	Equal variances not assumed			3.157	1467.635	0.002	0.31864	At the 0.05% Level	0.16	Insignificant

Appendix J: Gender Analysis (i)

Gender Coding: 1 Male, 2 Female

GENDER

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	1356	59.8	90.5	90.5
	2	142	6.3	9.5	100.0
	Total	1498	66.1	100.0	
Missing	System	768	33.9		
Total		2266	100.0		

Appendix J: Gender Analysis (ii)

	GENDER	N	Mean	Std. Deviation	Std. Error Mean
Game Capital	1	1356	5.5133	.92526	.02513
	2	142	5.6437	.96746	.08119
Knowledge of Alternatives	1	1356	4.6873	1.24470	.03380
	2	142	4.5304	1.32132	.11088
Metagame Benefits	1	1356	5.6056	1.07921	.02931
	2	142	5.2007	1.19073	.09992
Group Social Benefits	1	1072	5.9799	.83233	.02542
	2	110	6.0484	.84584	.08065
Past Satisfaction	1	1356	5.5595	1.05522	.02866
	2	142	5.6316	.98088	.08231
Shared Values with Company	1	1356	5.0917	1.10780	.03008
	2	142	5.0870	1.17387	.09851
Shared Values with Rules	1	1342	5.7768	.88211	.02408
	2	142	5.9514	.78399	.06579
Availability of Game Information	1	1356	6.0736	.92219	.02504
	2	142	6.1702	.79242	.06650
Customer Service Interactions	1	1356	4.7686	1.30967	.03557
	2	142	4.7752	1.38254	.11602
Perceptions of Game Developers	1	1356	5.1053	1.40916	.03827
	2	142	5.1147	1.29112	.10835
Opportunistic Behaviour	1	1356	2.6405	1.68054	.04564
	2	142	2.5117	1.70680	.14323
Trust	1	1356	5.4425	.92680	.02517
	2	142	5.2816	.94640	.07942
Commitment	1	1356	5.3638	1.08305	.02941
	2	142	5.4614	1.01186	.08491
Current Satisfaction	1	1356	5.6232	.89363	.02427
	2	142	5.7323	.91637	.07690
Future Intentions	1	1341	5.6546	1.94699	.05317
	2	140	5.6868	1.95657	.16536

Appendix J: Gender Analysis (iii)

		Levene's Test for Equality of Variances		***Independent Samples Test***			***t-test for Equality of Means***			
		F	***Sig.***	***t***	***df***	***Sig. (2-tailed)***	***Mean Difference***	***Significance***	***Cohen's d***	***Cohen's Indicator***
Game Capital	Equal variances assumed	0.228	0.633	-1.591	1496	0.112	-0.13043	Not Significant		
	Equal variances not assumed			-1.535	169.143	0.127	-0.13043			
Knowledge of Alternatives	Equal variances assumed	1.628	0.202	1.421	1496	0.156	0.15689	Not Significant		
	Equal variances not assumed			1.353	168.272	0.178	0.15689			
Metagame Benefits	Equal variances assumed	6.626	0.01	4.21	1496	0	0.40487			
	Equal variances not assumed			3.888	166.174	0	0.40487	At the 0.001 Level	0.37	Small
Group Social Benefits	Equal variances assumed	0.025	0.874	-0.821	1180	0.412	-0.06848	Not Significant		
	Equal variances not assumed			-0.81	131.604	0.419	-0.06848			
Past Satisfaction	Equal variances assumed	0.274	0.6	-0.78	1496	0.435	-0.07217	Not Significant		
	Equal variances not assumed			-0.828	176.977	0.409	-0.07217			

		Levene's Test for Equality of Variances		*Independent Samples Test*			*t-test for Equality of Means*			
		F	***Sig.***	***t***	***df***	***Sig. (2-tailed)***	***Mean Difference***	***Significance***	***Cohen's d***	***Cohen's Indicator***
Shared Values with Company	Equal variances assumed	0.72	0.396	0.047	1496	0.962	0.00467	Not Significant		
	Equal variances not assumed			0.045	168.374	0.964	0.00467			
Shared Values with Rules	Equal variances assumed	2.272	0.132	-2.266	1482	0.024	-0.17466	At the 0.05 Level	-0.20	Small
	Equal variances not assumed			-2.493	180.963	0.014	-0.17466			
Availability of Game Information	Equal variances assumed	1.535	0.216	-1.202	1496	0.23	-0.09656	Not Significant		
	Equal variances not assumed			-1.359	183.448	0.176	-0.09656			
Customer Service Interactions	Equal variances assumed	1.111	0.292	-0.057	1496	0.954	-0.00666	Not Significant		
	Equal variances not assumed			-0.055	168.59	0.956	-0.00666			
Perceptions of Game Developers	Equal variances assumed	4.116	0.043	-0.076	1496	0.939	-0.00943			
	Equal variances not assumed			-0.082	178.083	0.935	-0.00943	Not Significant		

		Levene's Test for Equality of Variances		***Independent Samples Test***			***t-test for Equality of Means***			
		F	***Sig.***	***t***	***df***	***Sig. (2-tailed)***	***Mean Difference***	***Significance***	***Cohen's d***	***Cohen's Indicator***
Opportunistic Behaviour	Equal variances assumed	0.096	0.757	0.868	1496	0.386	0.12879	Not Significant		
	Equal variances not assumed			0.857	170.899	0.393	0.12879			
Trust	Equal variances assumed	0.756	0.385	1.965	1496	0.05	0.16092	At the 0.05 Level	0.17	Insignificant
	Equal variances not assumed			1.932	170.564	0.055	0.16092			
Commitment	Equal variances assumed	0.819	0.366	-1.028	1496	0.304	-0.09761	Not Significant		
	Equal variances not assumed			-1.086	176.598	0.279	-0.09761			
Current Satisfaction	Equal variances assumed	0	0.989	-1.382	1496	0.167	-0.10917	Not Significant		
	Equal variances not assumed			-1.354	170.306	0.178	-0.10917			
Future Intentions	Equal variances assumed	0	0.984	-0.186	1479	0.852	-0.03222	Not Significant		
	Equal variances not assumed			-0.186	169.038	0.853	-0.03222			

Appendix K: Time Spent Playing Analysis (i)

Statistics

RTCHOURS

N	Valid	1819
	Missing	407
Mean		23.86
Median		20.00
Mode		20
Std. Deviation		14.962
Range		99
Minimum		1
Maximum		100
Percentiles	25	14.00
	50	20.00
	75	30.00

Appendix K: Time Spent Playing Analysis (ii)

	USEAGE	N	Mean	Std. Deviation	Std. Error Mean
Game Capital	LIGHT	425	5.05759	1.036507	.050278
	HEAVY	345	5.86378	.891635	.048004
Knowledge of Alternatives	LIGHT	425	4.46206	1.312139	.063648
	HEAVY	345	4.62567	1.300787	.070032
Metagame Benefits	LIGHT	444	5.07047	1.268362	.060194
	HEAVY	356	5.96142	1.035989	.054907
Group Social Benefits	LIGHT	311	5.56805	.986224	.055924
	HEAVY	305	6.21402	.840025	.048100
Past Satisfaction	LIGHT	397	5.40673	1.043902	.052392
	HEAVY	324	5.71819	1.084945	.060275
Shared Values with Company	LIGHT	425	5.00276	1.112206	.053950
	HEAVY	345	5.05874	1.250103	.067303
Shared Values with Rules	LIGHT	422	5.76419	.906760	.044140
	HEAVY	337	5.75906	.968352	.052750
Availability of Game Information	LIGHT	406	5.97108	.870742	.043214
	HEAVY	328	6.23397	.974019	.053781
Customer Service Interactions	LIGHT	406	4.68878	1.268067	.062933
	HEAVY	328	4.81111	1.327280	.073287
Perceptions of Game Developers	LIGHT	406	5.16351	1.354099	.067203
	HEAVY	328	4.98859	1.470397	.081189
Opportunistic Behaviour	LIGHT	399	2.68004	1.637336	.081969
	HEAVY	324	2.74325	1.811692	.100650
Trust	LIGHT	386	5.35401	.916088	.046628
	HEAVY	308	5.53611	1.010708	.057590
Commitment	LIGHT	384	4.99268	1.134587	.057899
	HEAVY	303	5.74266	1.040900	.059798
Current Satisfaction	LIGHT	384	5.49428	.856812	.043724
	HEAVY	303	5.81511	1.018489	.058511
Future Intentions	LIGHT	381	5.66899	1.841221	.094329
	HEAVY	302	5.68011	2.097874	.120719

Appendix K: Time Spent Playing Analysis (iii)

		Levene's Test for Equality of Variances		***Independent Samples Test***			***t-test for Equality of Means***			
		F	***Sig.***	***t***	***df***	***Sig. (2-tailed)***	***Mean Difference***	***Significance***	***Cohen's d***	***Cohen's Indicator***
Game Capital	Equal variances assumed	13.637	0	-11.419	768	0	-0.806193			
	Equal variances not assumed			-11.597	765.404	0	-0.806193	At the 0.001 Level	-0.827	Large
Knowledge of Alternatives	Equal variances assumed	0.502	0.479	-1.727	768	0.085	-0.163602	Not Significant		
	Equal variances not assumed			-1.729	738.305	0.084	-0.163602			
Metagame Benefits	Equal variances assumed	16.388	0	-10.697	798	0	-0.890946			
	Equal variances not assumed			-10.935	797.72	0	-0.890946	At the 0.001 Level	-0.761	Medium
Group Social Benefits	Equal variances assumed	10.423	0.001	-8.744	614	0	-0.645975			
	Equal variances not assumed			-8.757	602.228	0	-0.645975	At the 0.001 Level	-0.705	Medium
Past Satisfaction	Equal variances assumed	0.118	0.731	-3.915	719	0	-0.311455	At the 0.001 Level	-0.293	Small
	Equal variances not assumed			-3.9	679.213	0	-0.311455			

		Levene's Test for Equality of Variances		***Independent Samples Test***			***t-test for Equality of Means***			
		F	***Sig.***	***t***	***df***	***Sig. (2-tailed)***	***Mean Difference***	***Significance***	***Cohen's d***	***Cohen's Indicator***
Shared Values with Company	Equal variances assumed	2.738	0.098	-0.657	768	0.511	-0.055978	Not Significant		
	Equal variances not assumed			-0.649	695.224	0.517	-0.055978			
Shared Values with Rules	Equal variances assumed	1.553	0.213	0.075	757	0.94	0.005129	Not Significant		
	Equal variances not assumed			0.075	698.111	0.941	0.005129			
Availability of Game Information	Equal variances assumed	1.684	0.195	-3.856	732	0	-0.262884	At the 0.001 Level	-0.286	Small
	Equal variances not assumed			-3.81	662.562	0	-0.262884			
Customer Service Interactions	Equal variances assumed	0.169	0.681	-1.273	732	0.204	-0.122331	Not Significant		
	Equal variances not assumed			-1.266	685.926	0.206	-0.122331			
Perceptions of Game Developers	Equal variances assumed	2.086	0.149	1.674	732	0.095	0.174919	Not Significant		
	Equal variances not assumed			1.66	673.368	0.097	0.174919			

		Levene's Test for Equality of Variances		***Independent Samples Test***			***t-test for Equality of Means***			
		F	***Sig.***	***t***	***df***	***Sig. (2-tailed)***	***Mean Difference***	***Significance***	***Cohen's d***	***Cohen's Indicator***
Opportunistic Behaviour	Equal variances assumed	4.101	0.043	-0.492	721	0.623	-0.063203			
	Equal variances not assumed			-0.487	658.471	0.626	-0.063203	Not Significant		
Trust	Equal variances assumed	0.267	0.606	-2.485	692	0.013	-0.182099	At the 0.05 Level	-0.190	Insignificant
	Equal variances not assumed			-2.457	626.679	0.014	-0.182099			
Commitment	Equal variances assumed	3.329	0.068	-8.919	685	0	-0.749978	At the 0.001 Level	-0.685	Medium
	Equal variances not assumed			-9.01	669.616	0	-0.749978			
Current Satisfaction	Equal variances assumed	1.706	0.192	-4.482	685	0	-0.320825	At the 0.001 Level	-0.344	Small
	Equal variances not assumed			-4.392	588.709	0	-0.320825			
Future Intentions	Equal variances assumed	6.18	0.013	-0.074	681	0.941	-0.011116			
	Equal variances not assumed			-0.073	602.778	0.942	-0.011116	Not Significant		

Appendix L: Number of MMOs Played Analysis (i)

	SVMMOS	N	Mean	Std. Deviation	Std. Error Mean
Game Capital	>= 2	1316	5.52091	.955500	.026339
	< 2	368	5.47449	.990960	.051657
Knowledge of Alternatives	>= 2	1316	4.92167	1.150555	.031716
	< 2	368	3.65484	1.184471	.061745
Metagame Benefits	>= 2	1316	5.55974	1.085969	.029936
	< 2	368	5.50452	1.219069	.063548
Group Social Benefits	>= 2	1025	5.97788	.883461	.027595
	< 2	295	5.97130	.781829	.045520
Past Satisfaction	>= 2	1237	5.52804	1.078906	.030676
	< 2	333	5.75332	.868349	.047585
Shared Values with Company	>= 2	1316	5.06020	1.128019	.031095
	< 2	368	5.12808	1.089560	.056797
Shared Values with Rules	>= 2	1301	5.81327	.887067	.024593
	< 2	364	5.64483	.926985	.048587
Availability of Game Information	>= 2	1257	6.07729	.921818	.026000
	< 2	339	6.09339	.912662	.049569
Customer Service Interactions	>= 2	1257	4.76056	1.323655	.037334
	< 2	339	4.81441	1.264783	.068694
Perceptions of Game Developers	>= 2	1257	5.06558	1.404179	.039605
	< 2	339	5.12858	1.372480	.074543
Opportunistic Behaviour	>= 2	1239	2.61428	1.690011	.048012
	< 2	333	2.64261	1.671073	.091574
Trust	>= 2	1197	5.41599	.930798	.026903
	< 2	327	5.44268	.932568	.051571
Commitment	>= 2	1185	5.33148	1.094089	.031783
	< 2	326	5.51940	1.008427	.055852
Current Satisfaction	>= 2	1185	5.59089	.930843	.027041
	< 2	326	5.80208	.725450	.040179
Future Intentions	>= 2	1172	5.62683	1.928329	.056327
	< 2	320	5.76743	2.013851	.112578

Appendix L: Number of MMO's Played Analysis (ii)

		Levene's Test for Equality of Variances		*Independent Samples Test*			*t-test for Equality of Means*			
		F	***Sig.***	***t***	***df***	***Sig. (2-tailed)***	***Mean Difference***	***Significance***	***Cohen's d***	***Cohen's Indicator***
Game Capital	Equal variances assumed	1.894	0.169	0.817	1682	0.414	0.046	Not Significant		
	Equal variances not assumed			0.801	571.844	0.424	0.046			
Knowledge of Alternatives	Equal variances assumed	1.999	0.158	18.551	1682	0	1.267	At the 0.001 Level	1.09	Large
	Equal variances not assumed			18.25	575.043	0	1.267			
Metagame Benefits	Equal variances assumed	5.184	0.023	0.839	1682	0.402	0.055			
	Equal variances not assumed			0.786	540.523	0.432	0.055	Not Significant		
Group Social Benefits	Equal variances assumed	1.972	0.16	0.116	1318	0.908	0.007	Not Significant		
	Equal variances not assumed			0.124	529.269	0.902	0.007			
Past Satisfaction	Equal variances assumed	19.342	0	-3.516	1568	0	-0.225			
	Equal variances not assumed			-3.979	635.788	0	-0.225	At the 0.001 Level	-0.22	Small

		Levene's Test for Equality of Variances		*Independent Samples Test*			*t-test for Equality of Means*			
		F	***Sig.***	***t***	***df***	***Sig. (2-tailed)***	***Mean Difference***	***Significance***	***Cohen's d***	***Cohen's Indicator***
Shared Values with Company	Equal variances assumed	1.324	0.25	-1.028	1682	0.304	-0.068	Not Significant		
	Equal variances not assumed			-1.048	604.804	0.295	-0.068			
Shared Values with Rules	Equal variances assumed	2.44	0.118	3.171	1663	0.002	0.168	At the 0.01 Level	0.19	Insignificant
	Equal variances not assumed			3.093	562.524	0.002	0.168			
Availability of Game Information	Equal variances assumed	0.128	0.72	-0.286	1594	0.775	-0.016	Not Significant		
	Equal variances not assumed			-0.288	538.6	0.774	-0.016			
Customer Service Interactions	Equal variances assumed	2.329	0.127	-0.671	1594	0.502	-0.054	Not Significant		
	Equal variances not assumed			-0.689	554.156	0.491	-0.054			
Perceptions of Game Developers	Equal variances assumed	0.519	0.472	-0.737	1594	0.461	-0.063	Not Significant		
	Equal variances not assumed			-0.746	544.095	0.456	-0.063			

		Levene's Test for Equality of Variances		***Independent Samples Test***			***t-test for Equality of Means***			
		F	***Sig.***	***t***	***df***	***Sig. (2-tailed)***	***Mean Difference***	***Significance***	***Cohen's d***	***Cohen's Indicator***
Opportunistic Behaviour	Equal variances assumed	0.428	0.513	-0.272	1570	0.785	-0.028	Not Significant		
	Equal variances not assumed			-0.274	528.898	0.784	-0.028			
Trust	Equal variances assumed	0.066	0.798	-0.459	1522	0.646	-0.027	Not Significant		
	Equal variances not assumed			-0.459	517.145	0.647	-0.027			
Commitment	Equal variances assumed	6.804	0.009	-2.792	1509	0.005	-0.188			
	Equal variances not assumed			-2.924	553.634	0.004	-0.188	At the 0.01 Level	-0.17	Insignificant
Current Satisfaction	Equal variances assumed	13.396	0	-3.792	1509	0	-0.211	At the 0.001 Level	-0.24	Small
	Equal variances not assumed			-4.361	649.507	0	-0.211			
Future Intentions	Equal variances assumed	0.247	0.619	-1.145	1490	0.252	-0.141	Not Significant		
	Equal variances not assumed			-1.117	490.337	0.265	-0.141			

Appendix L: Number of MMOs Played Analysis (iii)

Statistics

SVMMOS

N	Valid	1684
	Missing	542
Mean		3.55
Median		3.00
Mode		1
Range		7
Sum		5978
Percentiles	25	2.00
	50	3.00
	75	5.00

SVMMOS

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	368	16.5	21.9	21.9
	2	291	13.1	17.3	39.1
	3	324	14.6	19.2	58.4
	4	233	10.5	13.8	72.2
	5	150	6.7	8.9	81.1
	6	72	3.2	4.3	85.4
	7	26	1.2	1.5	86.9
	8	220	9.9	13.1	100.0
	Total	1684	75.7	100.0	
Missing	System	542	24.3		
Total		2226	100.0		

Appendix L: Number of MMOs Played Analysis (iv)

	MMONUMBER	N	Mean	Std. Deviation	Std. Error Mean
Game Capital	LQ	659	5.52006	.953150	.037129
	UQ	468	5.42287	1.010124	.046693
Knowledge of Alternatives	LQ	659	3.94564	1.218604	.047470
	UQ	468	5.44258	.973242	.044988
Metagame Benefits	LQ	659	5.54831	1.144174	.044571
	UQ	468	5.45233	1.087066	.050250
Group Social Benefits	LQ	527	5.98990	.828854	.036105
	UQ	353	5.86746	.938645	.049959
Past Satisfaction	LQ	605	5.66511	.939559	.038198
	UQ	437	5.43261	1.233688	.059015
Shared Values with Company	LQ	659	5.14278	1.056023	.041137
	UQ	468	4.95621	1.224603	.056607
Shared Values with Rules	LQ	655	5.68314	.914511	.035733
	UQ	461	5.81380	.917881	.042750
Availability of Game Information	LQ	618	6.13306	.873529	.035139
	UQ	444	5.99474	.992263	.047091
Customer Service Interactions	LQ	618	4.82135	1.234323	.049652
	UQ	444	4.66435	1.375663	.065286
Perceptions of Game Developers	LQ	618	5.06120	1.346214	.054153
	UQ	444	5.07298	1.482624	.070362
Opportunistic Behaviour	LQ	605	2.65689	1.694036	.068872
	UQ	439	2.58312	1.687330	.080532
Trust	LQ	590	5.48106	.913352	.037602
	UQ	423	5.33595	.989502	.048111
Commitment	LQ	585	5.44784	1.045554	.043228
	UQ	421	5.23670	1.155474	.056314
Current Satisfaction	LQ	585	5.72356	.804096	.033245
	UQ	421	5.48023	1.038502	.050614
Future Intentions	LQ	578	5.64276	2.033950	.084601
	UQ	417	5.57410	1.928433	.094436

Appendix L: Number of MMOs Played Analysis (v)

		Levene's Test for Equality of Variances		***Independent Samples Test***			***t-test for Equality of Means***			
		F	***Sig.***	***t***	***df***	***Sig. (2-tailed)***	***Mean Difference***	***Significance***	***Cohen's d***	***Cohen's Indicator***
Game Capital	Equal variances assumed	0.873	0.35	1.645	1125	0.1	0.097	Not Significant		
	Equal variances not assumed			1.629	969.258	0.104	0.097			
Knowledge of Alternatives	Equal variances assumed	48.061	0	-22.046	1125	0	-1.497			
	Equal variances not assumed			-22.888	1109.592	0	-1.497	At the 0.001 Level	-1.33265	Large
Metagame Benefits	Equal variances assumed	1.472	0.225	1.417	1125	0.157	0.096	Not Significant		
	Equal variances not assumed			1.429	1035.836	0.153	0.096			
Group Social Benefits	Equal variances assumed	4.289	0.039	2.036	878	0.042	0.122			
	Equal variances not assumed			1.986	689.795	0.047	0.122	At the 0.05 Level	0.140015	Insignificant
Past Satisfaction	Equal variances assumed	24.008	0	3.452	1040	0.001	0.232			
	Equal variances not assumed			3.307	779.136	0.001	0.232	At the 0.01 Level	0.21673	Small

		Levene's Test for Equality of Variances		*Independent Samples Test*			*t-test for Equality of Means*			
		F	***Sig.***	***t***	***df***	***Sig. (2-tailed)***	***Mean Difference***	***Significance***	***Cohen's d***	***Cohen's Indicator***
Shared Values with Company	Equal variances assumed	10.215	0.001	2.734	1125	0.006	0.187			
	Equal variances not assumed			2.666	910.305	0.008	0.187	At the 0.01 Level	0.165244	Insignificant
Shared Values with Rules	Equal variances assumed	1.549	0.213	-2.347	1114	0.019	-0.131	At the 0.05 Level	-0.14266	Insignificant
	Equal variances not assumed			-2.345	988.07	0.019	-0.131			
Availability of Game Information	Equal variances assumed	0.015	0.903	2.404	1060	0.016	0.138	At the 0.05 Level	0.149537	Insignificant
	Equal variances not assumed			2.354	878.184	0.019	0.138			
Customer Service Interactions	Equal variances assumed	5.617	0.018	1.948	1060	0.052	0.157			
	Equal variances not assumed			1.914	889.909	0.056	0.157	Not Significant		
Perceptions of Game Developers	Equal variances assumed	3.729	0.054	-0.135	1060	0.893	-0.012	Not Significant		
	Equal variances not assumed			-0.133	897.213	0.894	-0.012			

		Levene's Test for Equality of Variances		***Independent Samples Test***			***t-test for Equality of Means***			
		F	***Sig.***	***t***	***df***	***Sig. (2-tailed)***	***Mean Difference***	***Significance***	***Cohen's d***	***Cohen's Indicator***
Opportunistic Behaviour	Equal variances assumed	0.033	0.856	0.696	1042	0.487	0.074	Not Significant		
	Equal variances not assumed			0.696	946.026	0.487	0.074			
Trust	Equal variances assumed	2.048	0.153	2.408	1011	0.016	0.145	At the 0.05 Level	0.153412	Insignificant
	Equal variances not assumed			2.376	864.028	0.018	0.145			
Commitment	Equal variances assumed	7.393	0.007	3.023	1004	0.003	0.211			
	Equal variances not assumed			2.974	848.837	0.003	0.211	At the 0.01 Level	0.193189	Insignificant
Current Satisfaction	Equal variances assumed	11.405	0.001	4.186	1004	0	0.243			
	Equal variances not assumed			4.018	758.989	0	0.243	At the 0.001 Level	0.267531	Small
Future Intentions	Equal variances assumed	1.217	0.27	0.537	993	0.591	0.069	Not Significant		
	Equal variances not assumed			0.542	923.038	0.588	0.069			

Appendix M: Analysis of Game Played (i)

	GAME1	N	Mean	Std. Deviation	Std. Error Mean
Game Capital	EVE	515	5.17332	.943171	.041561
	WoW	983	5.72837	.872154	.027817
Knowledge of Alternatives	EVE	515	4.39139	1.221432	.053823
	WoW	983	4.67702	1.252218	.039940
Metagame Benefits	EVE	528	5.71506	.926075	.040302
	WoW	1013	5.55690	1.128282	.035450
Group Social Benefits	EVE	417	5.84288	.817276	.040022
	WoW	850	6.02224	.904383	.031020
Past Satisfaction	EVE	491	5.83757	.796817	.035960
	WoW	910	5.48644	1.097266	.036374
Shared Values with Company	EVE	515	5.15770	1.066588	.046999
	WoW	983	5.11512	1.081939	.034508
Shared Values with Rules	EVE	514	5.82720	.894215	.039442
	WoW	967	5.75001	.877571	.028221
Availability of Game Information	EVE	498	5.74971	1.026911	.046017
	WoW	926	6.34997	.701097	.023039
Customer Service Interactions	EVE	498	4.73534	1.368925	.061343
	WoW	926	4.82740	1.257493	.041324
Perceptions of Game Developers	EVE	498	5.22815	1.438283	.064451
	WoW	926	5.03533	1.351711	.044420
Opportunistic Behaviour	EVE	491	2.36985	1.462930	.066021
	WoW	910	2.72928	1.768859	.058637
Trust	EVE	480	5.29842	.932535	.042564
	WoW	883	5.59103	.850759	.028630
Commitment	EVE	476	5.65211	.898952	.041203
	WoW	875	5.28773	1.109522	.037509
Current Satisfaction	EVE	476	5.74485	.740835	.033956
	WoW	875	5.61493	.923570	.031222
Future Intentions	EVE	472	6.01313	1.822500	.083887
	WoW	864	5.52340	1.973362	.067135

Appendix M: Analysis of Game Played (ii)

		Levene's Test for Equality of Variances		*Independent Samples Test*			*t-test for Equality of Means*			
		F	***Sig.***	***t***	***df***	***Sig. (2-tailed)***	***Mean Difference***	***Significance***	***Cohen's d***	***Cohen's Indicator***
Game Capital	Equal variances assumed	10.187	0.001	-11.373	1496	0	-0.56			
	Equal variances not assumed			-11.099	975.235	0	-0.56	At the 0.001 Level	-0.62	Medium
Knowledge of Alternatives	Equal variances assumed	0.028	0.868	-4.229	1496	0	-0.29	At the 0.001 Level	-0.23	Small
	Equal variances not assumed			-4.262	1066.635	0	-0.29			
Metagame Benefits	Equal variances assumed	23.664	0	2.771	1539	0.006	0.16			
	Equal variances not assumed			2.947	1263.936	0.003	0.16	At the 0.01 Level	0.15	Insignificant
Group Social Benefits	Equal variances assumed	0.396	0.529	-3.422	1265	0.001	-0.18	At the 0.001 Level	-0.20	Small
	Equal variances not assumed			-3.542	905.774	0	-0.18			
Past Satisfaction	Equal variances assumed	41.902	0	6.256	1399	0	0.35			
	Equal variances not assumed			6.865	1282.136	0	0.35	At the 0.001 Level	0.35	Small

		Levene's Test for Equality of Variances		*Independent Samples Test*			*t-test for Equality of Means*			
		F	***Sig.***	***t***	***df***	***Sig. (2-tailed)***	***Mean Difference***	***Significance***	***Cohen's d***	***Cohen's Indicator***
Shared Values with Company	Equal variances assumed	0	0.99	0.727	1496	0.467	0.04	Not Significant		
	Equal variances not assumed			0.73	1056.81	0.465	0.04			
Shared Values with Rules	Equal variances assumed	0.002	0.967	1.601	1479	0.11	0.08	Not Significant		
	Equal variances not assumed			1.592	1029.421	0.112	0.08			
Availability of Game Information	Equal variances assumed	49.532	0	-13.02	1422	0	-0.60			
	Equal variances not assumed			-11.664	752.01	0	-0.60	At the 0.001 Level	-0.72	Medium
Customer Service Interactions	Equal variances assumed	8.568	0.003	-1.277	1422	0.202	-0.09			
	Equal variances not assumed			-1.245	945.783	0.214	-0.09	Not Significant		
Perceptions of Game Developers	Equal variances assumed	2.114	0.146	2.51	1422	0.012	0.19	At the 0.05 Level	0.14	Insignificant
	Equal variances not assumed			2.463	964.38	0.014	0.19			

		Levene's Test for Equality of Variances		*Independent Samples Test*			*t-test for Equality of Means*			
		F	***Sig.***	***t***	***df***	***Sig. (2-tailed)***	***Mean Difference***	***Significance***	***Cohen's d***	***Cohen's Indicator***
Opportunistic Behaviour	Equal variances assumed	42.572	0	-3.848	1399	0	-0.36			
	Equal variances not assumed			-4.071	1174.119	0	-0.36	At the 0.001 Level	-0.22	Small
Trust	Equal variances assumed	8.776	0.003	-5.861	1361	0	-0.29			
	Equal variances not assumed			-5.704	909.395	0	-0.29	At the 0.001 Level	-0.33	Small
Commitment	Equal variances assumed	18.447	0	6.15	1349	0	0.36			
	Equal variances not assumed			6.54	1156.739	0	0.36	At the 0.001 Level	0.35	Small
Current Satisfaction	Equal variances assumed	20.16	0	2.641	1349	0.008	0.13			
	Equal variances not assumed			2.816	1165.102	0.005	0.13	At the 0.01 Level	0.15	Insignificant
Future Intentions	Equal variances assumed	20.583	0	4.453	1334	0	0.49			
	Equal variances not assumed			4.558	1035.675	0	0.49	At the 0.001 Level	0.25	Small

Appendix N: Analysis of Time Playing MMOs (i)

Statistics

SVPLAYTIMECOMB

N	Valid	1682
	Missing	544
Mean		3.14511
Mode		4.000
Range		9.833
Minimum		.083
Maximum		9.917
Percentiles	25	2.00000
	50	3.16667
	75	4.16667

Appendix N: Analysis of Time Playing MMOs (ii)

	HIGH/LOW	N	Mean	Std. Deviation	Std. Error Mean
Game Capital	Low	457	5.01914	1.031618	.048257
	High	452	5.80464	.798045	.037537
Knowledge of Alternatives	Low	457	4.49491	1.354483	.063360
	High	452	4.87938	1.219958	.057382
Metagame Benefits	Low	457	5.43965	1.193635	.055836
	High	452	5.60321	1.044944	.049150
Group Social Benefits	Low	328	5.79944	.880989	.048645
	High	360	6.04442	.838980	.044218
Past Satisfaction	Low	429	5.58041	1.024268	.049452
	High	422	5.60647	1.081207	.052632
Shared Values with Company	Low	457	4.95963	1.114423	.052131
	High	452	5.19396	1.065685	.050126
Shared Values with Rules	Low	454	5.73501	.878088	.041211
	High	445	5.82330	.911764	.043222
Availability of Game Information	Low	436	5.85331	.959236	.045939
	High	428	6.17154	.918146	.044380
Customer Service Interactions	Low	436	4.71045	1.177395	.056387
	High	428	4.83005	1.391034	.067238
Perceptions of Game Developers	Low	436	5.04425	1.305308	.062513
	High	428	5.13342	1.454718	.070316
Opportunistic Behaviour	Low	429	2.55887	1.544958	.074591
	High	423	2.70084	1.725533	.083898
Trust	Low	415	5.22340	.934828	.045889
	High	407	5.49315	.966926	.047929
Commitment	Low	411	5.22265	1.077303	.053139
	High	404	5.44865	1.041517	.051817
Current Satisfaction	Low	411	5.56220	.890788	.043939
	High	404	5.66001	.946296	.047080
Future Intentions	Low	408	5.63121	1.952374	.096657
	High	399	5.65376	1.974054	.098826

Appendix N: Analysis of Time Playing MMOs (iii)

		Levene's Test for Equality of Variances		*Independent Samples Test*			*t-test for Equality of Means*			
		F	***Sig.***	***t***	***df***	***Sig. (2-tailed)***	***Mean Difference***	***Significance***	***Cohen's d***	***Cohen's Indicator***
Game Capital	Equal variances assumed	34.962	0	-12.83	907	0	-0.785507			
	Equal variances not assumed			-12.848	857.386	0	-0.785507	At the 0.001 Level	-0.85	Large
Knowledge of Alternatives	Equal variances assumed	11.182	0.001	-4.495	907	0	-0.38447			
	Equal variances not assumed			-4.498	899.178	0	-0.38447	At the 0.001 Level	-0.30	Small
Metagame Benefits	Equal variances assumed	8.032	0.005	-2.197	907	0.028	-0.163559			
	Equal variances not assumed			-2.199	893.839	0.028	-0.163559	At the 0.05 Level	-0.15	Insignificant
Group Social Benefits	Equal variances assumed	2.348	0.126	-3.735	686	0	-0.24498	At the 0.001 Level	-0.29	Small
	Equal variances not assumed			-3.727	672.456	0	-0.24498			
Past Satisfaction	Equal variances assumed	1.138	0.286	-0.361	849	0.718	-0.026061	Not Significant		
	Equal variances not assumed			-0.361	844.802	0.718	-0.026061			

		Levene's Test for Equality of Variances		***Independent Samples Test***			***t-test for Equality of Means***			
		F	***Sig.***	***t***	***df***	***Sig. (2-tailed)***	***Mean Difference***	***Significance***	***Cohen's d***	***Cohen's Indicator***
Shared Values with Company	Equal variances assumed	1.303	0.254	-3.239	907	0.001	-0.234332	At the 0.001 Level	-0.21	Small
	Equal variances not assumed			-3.24	905.972	0.001	-0.234332			
Shared Values with Rules	Equal variances assumed	0.624	0.43	-1.479	897	0.139	-0.088293	Not Significant		
	Equal variances not assumed			-1.478	894.029	0.14	-0.088293			
Availability of Game Information	Equal variances assumed	1.698	0.193	-4.98	862	0	-0.318233	At the 0.001 Level	-0.34	Small
	Equal variances not assumed			-4.982	861.452	0	-0.318233			
Customer Service Interactions	Equal variances assumed	13.319	0	-1.365	862	0.173	-0.119595			
	Equal variances not assumed			-1.363	833.921	0.173	-0.119595	Not Significant		
Perceptions of Game Developers	Equal variances assumed	4.004	0.046	-0.949	862	0.343	-0.089169	Not Significant		
	Equal variances not assumed			-0.948	848.449	0.344	-0.089169			

		Levene's Test for Equality of Variances		*Independent Samples Test*			*t-test for Equality of Means*			
		F	***Sig.***	***t***	***df***	***Sig. (2-tailed)***	***Mean Difference***	***Significance***	***Cohen's d***	***Cohen's Indicator***
Opportunistic Behaviour	Equal variances assumed	4.773	0.029	-1.266	850	0.206	-0.141974			
	Equal variances not assumed			-1.265	837.107	0.206	-0.141974	Not Significant		
Trust	Equal variances assumed	0.115	0.735	-4.066	820	0	-0.269741	At the 0.001 Level	-0.28	Small
	Equal variances not assumed			-4.065	817.684	0	-0.269741			
Commitment	Equal variances assumed	0.446	0.505	-3.044	813	0.002	-0.226003	At the 0.01 Level	-0.21	Small
	Equal variances not assumed			-3.045	812.777	0.002	-0.226003			
Current Satisfaction	Equal variances assumed	0.493	0.483	-1.52	813	0.129	-0.097811	Not Significant		
	Equal variances not assumed			-1.519	808.141	0.129	-0.097811			
Future Intentions	Equal variances assumed	0.088	0.767	-0.163	805	0.87	-0.022552	Not Significant		
	Equal variances not assumed			-0.163	804.104	0.87	-0.022552			

Appendix O: Analysis of Perceived Relative Cost (i)

Statistics

CONTSUB1

N	Valid	1498
	Missing	728
Mean		5.32
Median		6.00
Mode		6
Std. Deviation		1.542
Variance		2.378
Range		6
Minimum		1
Maximum		7

CONTSUB1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	26	1.2	1.7	1.7
	2	79	3.5	5.3	7.0
	3	152	6.8	10.1	17.2
	4	70	3.1	4.7	21.8
	5	339	15.2	22.6	44.5
	6	474	21.3	31.6	76.1
	7	358	16.1	23.9	100.0
	Total	1498	67.3	100.0	
Missing	System	728	32.7		
Total		2226	100.0		

Appendix O: Analysis of Perceived Cost (ii)

	Low/High Relative Costs	N	Mean	Std. Deviation	Std. Error Mean
Game Capital	Disagree	257	5.30152	.974474	.060786
	Agree	1171	5.57860	.911577	.026639
Knowledge of Alternatives	Disagree	257	4.52380	1.280335	.079865
	Agree	1171	4.69914	1.252485	.036601
Metagame Benefits	Disagree	257	5.46446	1.094276	.068259
	Agree	1171	5.59841	1.089176	.031829
Group Social Benefits	Disagree	197	5.86980	.815108	.058074
	Agree	934	6.01727	.836909	.027384
Past Satisfaction	Disagree	257	5.29988	1.155873	.072101
	Agree	1171	5.64252	1.003948	.029338
Shared Values with Company	Disagree	257	4.81628	1.165945	.072730
	Agree	1171	5.17235	1.072867	.031352
Shared Values with Rules	Disagree	256	5.64925	.978960	.061185
	Agree	1158	5.82720	.850384	.024990
Availability of Game Information	Disagree	257	5.88173	1.027919	.064120
	Agree	1171	6.14045	.871327	.025463
Customer Service Interactions	Disagree	257	4.62647	1.356229	.084599
	Agree	1171	4.80533	1.299015	.037961
Perceptions of Game Developers	Disagree	257	4.84872	1.399911	.087324
	Agree	1171	5.18020	1.382266	.040394
Opportunistic Behaviour	Disagree	257	2.72801	1.687384	.105256
	Agree	1171	2.59678	1.681902	.049150
Trust	Disagree	257	5.22491	.940537	.058669
	Agree	1171	5.49362	.904000	.026417
Commitment	Disagree	257	5.12746	1.199050	.074795
	Agree	1171	5.44489	1.033243	.030194
Current Satisfaction	Disagree	257	5.41760	1.036465	.064653
	Agree	1171	5.70139	.846686	.024743
Future Intentions	Disagree	255	5.47600	1.956819	.122541
	Agree	1157	5.74636	1.903885	.055972

Appendix O: Analysis of Perceived Cost (iii)

		Levene's Test for Equality of Variances		*Independent Samples Test*			*t-test for Equality of Means*			
		F	***Sig.***	***t***	***df***	***Sig. (2-tailed)***	***Mean Difference***	***Significance***	***Cohen's d***	***Cohen's Indicator***
Game Capital	Equal variances assumed	2.958	0.086	-4.357	1426	0	-0.277083	At the 0.001 Level	-0.3001	Small
	Equal variances not assumed			-4.175	360.861	0	-0.277083			
Knowledge of Alternatives	Equal variances assumed	0.481	0.488	-2.024	1426	0.043	-0.17534	At the 0.05 Level	-0.1394	Insignificant
	Equal variances not assumed			-1.996	371.243	0.047	-0.17534			
Metagame Benefits	Equal variances assumed	0.257	0.613	-1.784	1426	0.075	-0.133942	Not Significant		
	Equal variances not assumed			-1.778	375.542	0.076	-0.133942			
Group Social Benefits	Equal variances assumed	0.01	0.92	-2.258	1129	0.024	-0.147477	At the 0.05 Level	-0.177	Insignificant
	Equal variances not assumed			-2.297	289.843	0.022	-0.147477			
Past Satisfaction	Equal variances assumed	9.427	0.002	-4.816	1426	0	-0.342635			
	Equal variances not assumed			-4.402	345.715	0	-0.342635	At the 0.001 Level	-0.3317	Small

		Levene's Test for Equality of Variances		*Independent Samples Test*			*t-test for Equality of Means*			
		F	***Sig.***	***t***	***df***	***Sig. (2-tailed)***	***Mean Difference***	***Significance***	***Cohen's d***	***Cohen's Indicator***
Shared Values with Company	Equal variances assumed	2.477	0.116	-4.742	1426	0	-0.356074	At the 0.001 Level	-0.3266	Small
	Equal variances not assumed			-4.496	357.285	0	-0.356074			
Shared Values with Rules	Equal variances assumed	10.999	0.001	-2.945	1412	0.003	-0.17795			
	Equal variances not assumed			-2.692	345.055	0.007	-0.17795	At the 0.01 Level	-0.2034	Small
Availability of Game Information	Equal variances assumed	7.517	0.006	-4.167	1426	0	-0.258721			
	Equal variances not assumed			-3.75	341.25	0	-0.258721	At the 0.001 Level	-0.287	Small
Customer Service Interactions	Equal variances assumed	0.552	0.458	-1.983	1426	0.048	-0.178865	At the 0.05 Level	-0.1366	Insignificant
	Equal variances not assumed			-1.929	366.218	0.055	-0.178865			
Perceptions of Game Developers	Equal variances assumed	0.37	0.543	-3.473	1426	0.001	-0.331476	At the 0.001 Level	-0.2393	Small
	Equal variances not assumed			-3.445	373.533	0.001	-0.331476			

		Levene's Test for Equality of Variances		*Independent Samples Test*			*t-test for Equality of Means*			
		F	***Sig.***	***t***	***df***	***Sig. (2-tailed)***	***Mean Difference***	***Significance***	***Cohen's d***	***Cohen's Indicator***
Opportunistic Behaviour	Equal variances assumed	0.031	0.86	1.132	1426	0.258	0.131229	Not Significant		
	Equal variances not assumed			1.13	375.901	0.259	0.131229			
Trust	Equal variances assumed	0.847	0.357	-4.284	1426	0	-0.268709	At the 0.001 Level	-0.2951	Small
	Equal variances not assumed			-4.176	367.03	0	-0.268709			
Commitment	Equal variances assumed	10.857	0.001	-4.327	1426	0	-0.317425			
	Equal variances not assumed			-3.935	344.239	0	-0.317425	At the 0.001 Level	-0.2981	Small
Current Satisfaction	Equal variances assumed	11.277	0.001	-4.662	1426	0	-0.28379			
	Equal variances not assumed			-4.099	334.906	0	-0.28379	At the 0.001 Level	-0.3211	Small
Future Intentions	Equal variances assumed	1.222	0.269	-2.042	1410	0.041	-0.270364	At the 0.05 Level	-0.1413	Insignificant
	Equal variances not assumed			-2.007	367.528	0.045	-0.270364			

Appendix P: (i) Used Gold Seller Services Analysis

	OBUSE 1	N	Mean	Std. Deviation	Std. Error Mean
Game Capital	1	262	5.68627	.946016	.058445
	2	1310	5.48951	.943456	.026067
Knowledge of Alternatives	1	262	4.95308	1.241618	.076707
	2	1310	4.61797	1.252078	.034594
Metagame Benefits	1	262	5.69070	1.133280	.070014
	2	1310	5.54037	1.104297	.030511
Group Social Benefits	1	201	6.10370	.899466	.063443
	2	1039	5.95939	.836930	.025965
Past Satisfaction	1	262	5.48864	1.124663	.069482
	2	1308	5.59328	1.023774	.028307
Shared Values with Company	1	262	5.06133	1.173504	.072499
	2	1310	5.09991	1.098028	.030337
Shared Values with Rules	1	261	5.60616	.880750	.054517
	2	1296	5.83547	.881100	.024475
Availability of Game Information	1	262	6.12238	.972306	.060069
	2	1310	6.07226	.912416	.025209
Customer Service Interactions	1	262	4.64765	1.359077	.083964
	2	1310	4.79731	1.302566	.035989
Perceptions of Game Developers	1	262	5.00463	1.476238	.091202
	2	1310	5.10789	1.381775	.038177
Opportunistic Behaviour	1	262	3.98332	1.730988	.106941
	2	1310	2.34768	1.538171	.042498
Trust	1	256	5.44423	.988485	.061780
	2	1268	5.41717	.919224	.025814
Commitment	1	254	5.45177	1.179127	.073985
	2	1257	5.35591	1.056944	.029812
Current Satisfaction	1	254	5.63877	.994201	.062382
	2	1257	5.63599	.873470	.024637
Future Intentions	1	252	5.62859	1.953007	.123028
	2	1240	5.66276	1.946706	.055283

Appendix P: (ii) Used Gold Seller Services

		Levene's Test for Equality of Variances		*Independent Samples Test*			*t-test for Equality of Means*			
		F	***Sig.***	***t***	***df***	***Sig. (2-tailed)***	***Mean Difference***	***Significance***	***Cohen's d***	***Cohen's Indicator***
Game Capital	Equal variances assumed	0.123	0.726	3.08	1570	0.002	0.197	At the 0.01 Level	0.21	Small
	Equal variances not assumed			3.075	372.227	0.002	0.197			
Knowledge of Alternatives	Equal variances assumed	1.431	0.232	3.96	1570	0	0.335	At the 0.001 Level	0.27	Small
	Equal variances not assumed			3.982	374.871	0	0.335			
Metagame Benefits	Equal variances assumed	0.031	0.861	2.003	1570	0.045	0.150	At the 0.05 Level	0.14	Insignificant
	Equal variances not assumed			1.968	366.902	0.05	0.150			
Group Social Benefits	Equal variances assumed	1.346	0.246	2.21	1238	0.027	0.144	At the 0.05 Level	0.17	Insignificant
	Equal variances not assumed			2.105	271.141	0.036	0.144			
Past Satisfaction	Equal variances assumed	5.701	0.017	-1.485	1568	0.138	-0.105			
	Equal variances not assumed			-1.395	352.891	0.164	-0.105	Not Significant		

		Levene's Test for Equality of Variances		***Independent Samples Test***			***t-test for Equality of Means***			
		F	***Sig.***	***t***	***df***	***Sig. (2-tailed)***	***Mean Difference***	***Significance***	***Cohen's d***	***Cohen's Indicator***
Shared Values with Company	Equal variances assumed	1.266	0.261	-0.513	1570	0.608	-0.039	Not Significant		
	Equal variances not assumed			-0.491	358.215	0.624	-0.039			
Shared Values with Rules	Equal variances assumed	0.001	0.972	-3.836	1555	0	-0.229	At the 0.001 Level	-0.26	Small
	Equal variances not assumed			-3.837	372.331	0	-0.229			
Availability of Game Information	Equal variances assumed	0.01	0.921	0.803	1570	0.422	0.050	Not Significant		
	Equal variances not assumed			0.769	358.812	0.442	0.050			
Customer Service Interactions	Equal variances assumed	0.577	0.448	-1.685	1570	0.092	-0.150	Not Significant		
	Equal variances not assumed			-1.638	363.263	0.102	-0.150			
Perceptions of Game Developers	Equal variances assumed	1.357	0.244	-1.091	1570	0.275	-0.103	Not Significant		
	Equal variances not assumed			-1.044	358.287	0.297	-0.103			

		Levene's Test for Equality of Variances		***Independent Samples Test***			***t-test for Equality of Means***			
		F	***Sig.***	***t***	***df***	***Sig. (2-tailed)***	***Mean Difference***	***Significance***	***Cohen's d***	***Cohen's Indicator***
Opportunistic Behaviour	Equal variances assumed	9.052	0.003	15.376	1570	0	1.636			
	Equal variances not assumed			14.214	348.215	0	1.636	At the 0.001 Level	1.04	Large
Trust	Equal variances assumed	3.346	0.068	0.424	1522	0.672	0.027	Not Significant		
	Equal variances not assumed			0.404	349.669	0.686	0.027			
Commitment	Equal variances assumed	6.427	0.011	1.292	1509	0.196	0.096			
	Equal variances not assumed			1.202	340.018	0.23	0.096	Not Significant		
Current Satisfaction	Equal variances assumed	3.909	0.048	0.045	1509	0.964	0.003			
	Equal variances not assumed			0.041	336.428	0.967	0.003	Not Significant		
Future Intentions	Equal variances assumed	0.4	0.527	-0.254	1490	0.8	-0.034	Not Significant		
	Equal variances not assumed			-0.253	359.625	0.8	-0.034			

Appendix Q: Analysis of In Group and Out of Group (i)

	RBGRPGATE1	N	Mean	Std. Deviation	Std. Error Mean
Game Capital	>= 2	364	4.86688	1.028776	.053922
	< 2	1320	5.68832	.864105	.023784
Knowledge of Alternatives	>= 2	364	4.70236	1.376784	.072163
	< 2	1320	4.62897	1.239841	.034125
Metagame Benefits	>= 2	385	5.23222	1.244870	.063444
	< 2	1350	5.62156	1.070261	.029129
Past Satisfaction	>= 2	331	5.21187	1.258590	.069178
	< 2	1239	5.67305	.952893	.027071
Shared Values with Company	>= 2	364	4.89773	1.246949	.065358
	< 2	1320	5.12393	1.077450	.029656
Shared Values with Rules	>= 2	362	5.71043	.967838	.050868
	< 2	1303	5.79478	.877603	.024312
Availability of Game Information	>= 2	339	5.89282	1.062659	.057716
	< 2	1257	6.13138	.870615	.024556
Customer Service Interactions	>= 2	339	4.69035	1.333428	.072422
	< 2	1257	4.79402	1.304760	.036801
Perceptions of Game Developers	>= 2	339	4.95852	1.472077	.079952
	< 2	1257	5.11144	1.375264	.038790
Opportunistic Behaviour	>= 2	332	2.69268	1.712018	.093959
	< 2	1240	2.60090	1.678531	.047667
Trust	>= 2	322	5.27219	1.018695	.056770
	< 2	1202	5.46178	.902238	.026024
Commitment	>= 2	318	5.00988	1.190999	.066788
	< 2	1193	5.46855	1.025814	.029699
Current Satisfaction	>= 2	318	5.38539	1.076514	.060368
	< 2	1193	5.70338	.827175	.023948
Future Intentions	>= 2	315	5.27318	2.014571	.113508
	< 2	1177	5.75970	1.916591	.055865

Appendix Q: (ii) Analysis of In Group and Out of Group

		Levene's Test for Equality of Variances		***Independent Samples Test***			***t-test for Equality of Means***			
		F	***Sig.***	***t***	***df***	***Sig. (2-tailed)***	***Mean Difference***	***Significance***	***Cohen's d***	***Cohen's Indicator***
Game Capital	Equal variances assumed	23.344	0	-15.38	1682	0	-0.821			
	Equal variances not assumed			-13.938	512.638	0	-0.821	At the 0.001 Level	-0.91	Large
Knowledge of Alternatives	Equal variances assumed	6.543	0.011	0.976	1682	0.329	0.073			
	Equal variances not assumed			0.919	536.129	0.358	0.073	Not Significant		
Metagame Benefits	Equal variances assumed	15.637	0	-6.064	1733	0	-0.389			
	Equal variances not assumed			-5.577	555.921	0	-0.389	At the 0.001 Level	-0.35	Small
Past Satisfaction	Equal variances assumed	32.097	0	-7.273	1568	0	-0.461			
	Equal variances not assumed			-6.208	436.082	0	-0.461	At the 0.001 Level	-0.45	Small
Shared Values with Company	Equal variances assumed	10.539	0.001	-3.423	1682	0.001	-0.226			
	Equal variances not assumed			-3.152	521.773	0.002	-0.226	At the 0.01 Level	-0.20	Small

		Levene's Test for Equality of Variances		Independent Samples Test			t-test for Equality of Means			
		E	**Sig.**	**t**	**df**	**Sig. (2-tailed)**	**Mean Difference**	**Significance**	**Cohen's d**	**Cohen's Indicator**
Shared Values with Rules	Equal variances assumed	6.696	0.01	-1.581	1663	0.114	-0.084			
	Equal variances not assumed			-1.496	536.995	0.135	-0.084	Not Significant		
Availability of Game Information	Equal variances assumed	13.74	0	-4.262	1594	0	-0.239			
	Equal variances not assumed			-3.804	467.325	0	-0.239	At the 0.001 Level	-0.26	Small
Customer Service Interactions	Equal variances assumed	0.055	0.815	-1.292	1594	0.196	-0.104	Not Significant		
	Equal variances not assumed			-1.276	525.66	0.202	-0.104			
Perceptions of Game Developers	Equal variances assumed	2.086	0.149	-1.789	1594	0.074	-0.153	Not Significant		
	Equal variances not assumed			-1.721	508.268	0.086	-0.153			
Opportunistic Behaviour	Equal variances assumed	0.417	0.518	0.881	1570	0.378	0.092	Not Significant		
	Equal variances not assumed			0.871	514.205	0.384	0.092			

		Levene's Test for Equality of Variances		***Independent Samples Test***			***t-test for Equality of Means***			
		F	***Sig.***	***t***	***df***	***Sig. (2-tailed)***	***Mean Difference***	***Significance***	***Cohen's d***	***Cohen's Indicator***
Trust	Equal variances assumed	4.886	0.027	-3.256	1522	0.001	-0.190			
	Equal variances not assumed			-3.036	464.6	0.003	-0.190	At the 0.01 Level	-0.20	Small
Commitment	Equal variances assumed	13.944	0	-6.839	1509	0	-0.459			
	Equal variances not assumed			-6.275	450.084	0	-0.459	At the 0.001 Level	-0.43	Small
Current Satisfaction	Equal variances assumed	21.924	0	-5.691	1509	0	-0.318			
	Equal variances not assumed			-4.896	421.85	0	-0.318	At the 0.001 Level	-0.35	Small
Future Intentions	Equal variances assumed	8.448	0.004	-3.958	1490	0	-0.487			
	Equal variances not assumed			-3.846	477.07	0	-0.487	At the 0.001 Level	-0.25	Small

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